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PHARMACOLOGIC BASIS OF CARDIAC THERAPY

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I have planned to present an account of pharmacologic studies which have a more or less direct bearing on problems of cardiac therapy. I shall confine my remarks, for the most part, to explorations in this field which have been made in recent years by a group of collaborators in our laboratory and clinics.[1] These relate chiefly to investigations made directly on human subjects. The term "clinical study" doesn't rate very high in scientific circles. The belief prevails that the search for facts on drug action in man directly is of necessity inexact, subject to the impressions and prejudices of the observer and not amenable to the strict control of the animal experiment. There are, to be sure, many problems in pharmacology which are inaccessible to study directly on the human subject, but there is a vast area of pharmacologic investigation which may be developed with the human subject and which, if the experiments are suitably designed, may be counted on to yield important facts in a manner which complies with the strictest demands of scientific evidence.

Action of Digitalis in Failure.—How digitalis acts to relieve heart failure has long been a matter of controversy. No doubt exists that the failing heart is able to perform more effectively under the influence of digitalis. However, we were very long in obtaining an answer to the question whether digitalis glycosides act directly on heart muscle to increase the systolic force or whether the action is entirely indirect. A few years ago an answer to that question was supplied by means of a simple preparation of the mammalian heart muscle[2] (fig. 1). The papillary muscle of the right ventricle of the cat, a muscle about 10 mm. long and weighing about 20 mg., was set up on an isometric lever, driven at a fixed rate, and its tension recorded photographically. The muscle soon began to fail, and when its force had fallen to a very low level a digitalis glycoside was administered in a concentration prevailing after therapeutic doses in man, as low as 1 part in 75 million parts of fluid. Within several minutes the force began to rise and reach high levels, at which it remained for many hours. No other chemical material is known which produces such definite and sustained increase in the systolic force of the mammalian heart muscle. While the systolic force rose, the "tone" of the muscle remained unchanged (fig. 2). An increase in the systolic force measured by its tension, as a result of a direct action on the heart muscle, may therefore be taken as the primary mechanism by which digitalis relieves heart failure. Most of the other significant changes in the heart and circulation which occur in patients with heart failure after digitalis follow as secondary adaptations.[3]

Vagal and Extravagal Action of Digitalis.—Slowing of the ventricular rate is one of the outstanding results of digitalis action in auricular fibrillation. Two mechanisms may be seen to be at work.[4] In some instances (fig. 3) blocking the vagus by 2 mg. of atropine sulfate intravenously abolishes the slowing, while in others the atropine has little influence on the slowing. In a further study of the matter we found that in one and the same person the slowing may be vagal at one time and extravagal at another (fig. 10) and further that the deciding factor is the dose of digitalis. As the dose is increased the control of the ventricular rate tends to pass from the vagal to the extravagal mechanism. It is important to note that in the operation of this adaptive mechanism the resting rate may remain unchanged.

In another investigation[5] we observed that physical exercise to the limit of the patient's endurance has the same effect on rate as blocking the vagus with atropine (fig. 4). When slowing is by the vagal mechanism (abolished by atropine) exercise may accelerate the rate to 180 a minute, but when the slowing is by the extravagal mechanism (not abolished by atropine) exercise rarely accelerates the rate above about 100 a minute. This is a matter of some importance in the maintenance of patients with auricular fibrillation. In the treatment of these patients it is not uncommon to find digitalis reducing the rate from 140 to 70 when the patient is at rest. When he is up and about, however, he complains of palpitation and breathlessness. Free physical activity raises the rate to uncomfortable peaks when the mechanism of control is vagal. If larger doses of digitalis are given, the rate control passes to the extravagal mechanism, which prevents the exaggerated acceleration with exercise, even though the resting rate may not be materially lowered. These mechanisms are illustrated diagrammatically in figure 5.

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2. Cattell, McK., and Gold, H.: J. Pharmacol. & Exper. Therap. **62**: 116 (Jan.) 1938.

3. Gold, H., and Cattell, McK.: Mechanism of Digitalis Action in Abolishing Heart Failure, Arch. Int. Med. **65**: 263 (Feb.) 1940.

4. Gold, H.; Kwit, N. T.; Otto, H. L., and Fox, T.: J. Clin. Investigation **18**: 429 (July) 1939; J. Pharmacol. & Exper. Therap. **67**: 224 (Oct.) 1939.

5. Modell, W.; Gold, H., and Rothendler, H. H.: Use of Digitalis to Prevent Exaggerated Acceleration of Heart During Physical Exercise in Patients with Auricular Fibrillation, J. A. M. A. **116**: 2241 (May 17) 1941.

U. S. P. Assay of Digitalis.—The potency of digitalis preparations is known to vary. The latest revision of the U. S. Pharmacopeia adopted the cat method of assay as a means of securing uniformity. In this method the unknown preparation and the Standard Reference Digitalis are injected intravenously into cats and the

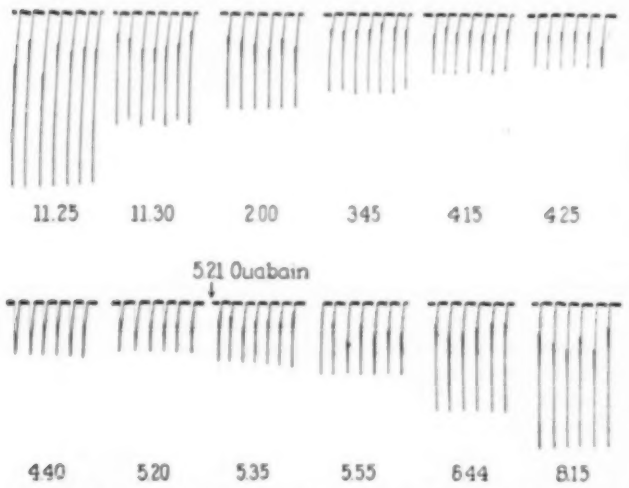

Fig. 1.—Effect of digitalis glycoside on the systolic force of mammalian heart muscle.

ratio of their lethal doses is determined. The unknown is so adjusted that 0.1 Gm. produces the effect of 0.1 Gm. or 1 U. S. P. unit of the Standard. This is by intravenous injection in cats. But digitalis preparations differ in their absorbability, and they are usually given by mouth in man. A material that is potent by vein may be weak by mouth if it is poorly absorbed.

Human Assay of Digitalis.—To overcome this difficulty we developed a method for the assay of digitalis preparations by oral administration in man.[6] The method follows the basic principles of bioassay. A suitable sensitive individual is calibrated by the Standard Digitalis Powder of the U. S. Pharmacopeia. Figure 6 shows a case that is (Mi. La.) and one that is not (Es. As.) suitable. Calibration involves ascertaining whether the patient in question can distinguish 25 per

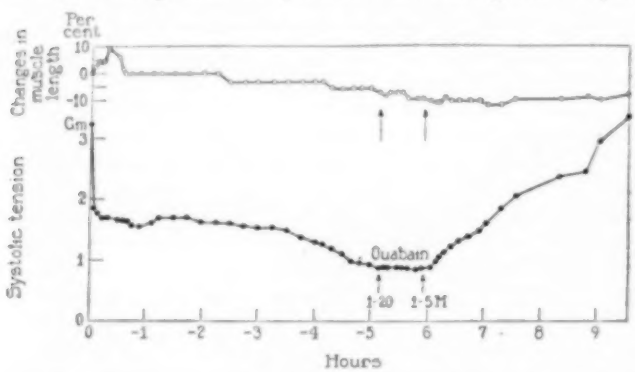

Fig. 2.—Changes in systolic and diastolic tension ("tone") of papillary muscle during action of digitalis glycoside.

cent differences in the doses of the Standard by changes in the T wave of the electrocardiogram. In an assay (fig. 7) a tracing is taken, a dose is given and a second tracing is taken twenty-four hours later for the effect on the T wave. A month is allowed to elapse for elimination. The pair of tracings and a dose of the Standard are repeated at monthly intervals. Each dose is about 25 per cent larger than the previous one. The Unknown is then similarly tested in doses which produce effects falling within the calibration points of the Standard. The matching of electrocardiograms is all done with the "blind test." In this way one determines how much of the Unknown produces the same effect as a given amount of the Standard. Since any 1 patient may show abnormal behavior, the test is repeated on 6 or 8 similarly calibrated patients (table 1). From the average of these, one obtains the amount of the Unknown specimen which produces in human beings, by oral administration, the same effect as 100 mg. of the Standard Reference Powder, or 1 U. S. P. unit. The results by the Human Method are reproducible with a high degree of precision as seen from the potency of preparations reassayed several times[7] (table 2).

How different are the answers by the two methods of assay? We have secured some idea about that from a series of preparations which were tested by the two methods. The results are shown in table 3. Imagine each of these preparations put up in a tablet of 1 U. S. P. unit as determined by the official intravenous cat method. You will note that for different specimens of digitalis labeled 1 U. S. P. unit one tablet may produce three

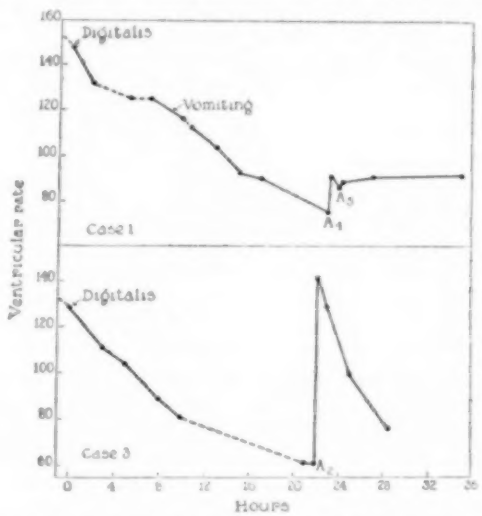

Fig. 3.—Effect of atropine sulfate after digitalis in 2 cases of heart failure with auricular fibrillation. Each patient received a large dose of digitalis and showed the usual response. Each intravenous dose of atropine sulfate (A_2, A_4, A_5) was 2 mg.

times as much effect as another, and in the case of purified glycosides one tablet may produce about ten times as much effect as another. This matter is quite serious if it is not clearly understood, for 10 U. S. P. units of lanatoside C (Cedilanid) would be insufficient to digitalize a patient, whereas 10 U. S. P. units of digitoxin might prove fatal. The human method of assay seems to be the only present remedy to the problem of securing uniformity of digitalis preparations for oral administration in man.

Absorption of Digitalis Glycosides.—We may now turn to the subject of the absorption of digitalis materials from the gastrointestinal tract. We approached the study of this matter by comparing the size of the oral and intravenous doses necessary to produce the same effect in patients with auricular fibrillation. This ratio of oral to intravenous dose is a practical index of absorption for the vast majority of digitalis materials. The patient is put to bed, the ventricular rate

6. Gold, H.; Cattell, McK.; Otto, H. L.; Kwit, N. T., and Kramer, M. L.: J. Pharmacol. & Exper. Therap. **75**: 196 (July) 1942.

7. Gold, H.: Federation Proc. **3**: 72 (March) 1944.

is counted several times daily during a control period, and, when the rate has stabilized, a large dose is given at one time by mouth or by vein as the case may be, and similar counts of the ventricular rate are made at frequent intervals during the day until the full effects have developed. By means of this method it was found

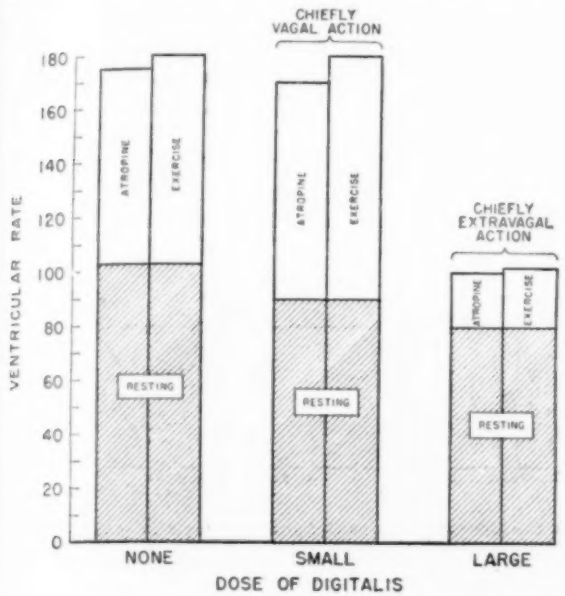

Fig. 4.—Effects of exercise and of atropine on the heart rate in 11 ambulant patients with heart failure and auricular fibrillation after small and large doses of digitalis.

that digitoxin is practically completely absorbed [8] (fig. 11), since a dose produces the same effect whether given by mouth or by vein. About 20 per cent of a dose of digitalis is absorbed, and only about 10 per cent of a dose of lanatoside C (fig. 8). Complete absorption from the gastrointestinal tract is a rare experience in pharmacology. There are very few drugs for which the oral and intravenous doses are the same.

Single Average Full Dose Method of Digitalization.—The human assay of digitoxin by the T wave shows that 1 mg. produces the same effect in man by oral

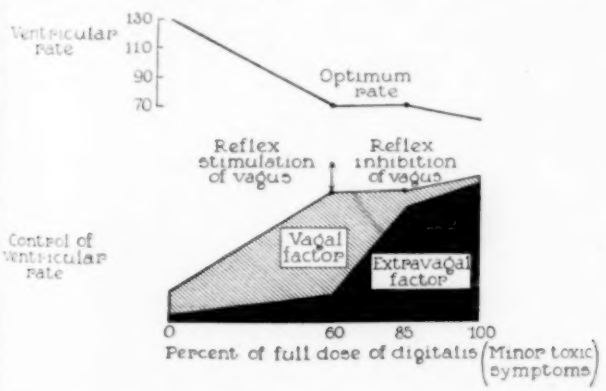

Fig. 5.—Schematic representation of the mechanism by which digitalis slows the ventricular rate in heart failure with auricular fibrillation.

administration as 1 Gm. of the Standard Digitalis Powder. The same relationship was found to apply to the effects in auricular fibrillation [8] (fig. 12). The fact that digitoxin is so potent and so well absorbed suggested the possibility of employing it in a single dose method of digitalization to replace the multiple dose methods employing digitalis leaf or the tincture.[9] Our results indicate that the most favorable routine technic for digitalizing patients is to administer 1.2 mg. of digitoxin at one time. This produces a high degree of digitalization in a period of about six to ten hours in the place of the twenty-four to forty-eight hour period required for the divided dose methods in which digitalis is used. One cannot use the digitalis leaf or the tincture by this method, because the equivalent amount of digitalis, namely 1.2 Gm., will cause nausea or vomiting by local action in about 10 to 20 per cent of the cases. The therapeutic effects are maintained in the majority of cases by a single daily dose of a tablet of 0.2 mg. The use of digitoxin in this way has greatly simplified the problem of digitalization.

Variations in Human Susceptibility to Digitalis.—Some difficulty has been encountered in gaining general

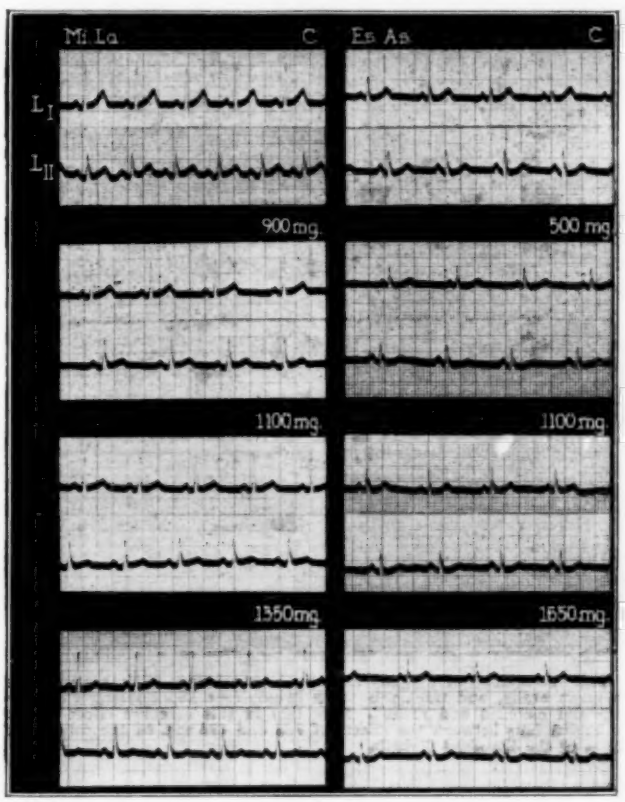

Fig. 6.—Selection of patients for human assay of digitalis. *C* is control before digitalis. Patient Es. As. is not suitable for assay because he can't distinguish 500 mg. from a dose more than three times as large by the T wave change. Patient Mi. La. is satisfactory for assay because the T waves become distinctly lower with dose increments of 25 per cent or less.

acceptance of the idea that it is proper to use an average full digitalizing dose of digitoxin at one time in a routine manner. The argument is that patients vary too much, that the most tolerant ones will escape full digitalization and the most susceptible ones will be poisoned. It is indeed a fact that some patients need closer to 2 mg. to digitalize them fully. From our experience with more than 1,000 single dose digitalizations with 1.2 mg. a negligible number, about 2 out of 100, show nausea or vomiting. The safety of this method is therefore beyond question. In this connection I may call attention to a fact pointed out by Clark [10]

8. Gold, H.; Cattell, McK.; Modell, W.; Kwit, N. T.; Kramer, M. L., and Zahn, W.: J. Pharmacol. & Exper. Therap. **82**: 187 (Oct.) 1944.

9. Gold, H.; Kwit, N. T.; Cattell, McK., and Travell, J.: Studies on Purified Digitalis Glycosides, J. A. M. A. **119**: 928 (July 18) 1942. Gold, Cattell, Modell, Kwit, Kramer and Zahn.[8]

10. Clark, A. J.: Brit. M. J. **2**: 307 (Aug. 14) 1937.

and others that digitalis action in animals is very uniform as drugs go. We recently prepared a distribution curve of digitalis action after oral administration in 86 patients (833 doses) based on the threshold doses causing a T wave change in the electrocardiogram [11] (fig. 12). The curve is very similar to that observed in the cat. Variation of patients' sensitivity from the approximate mean is not great. A dose ± 25 per cent of the mean includes about 70 per cent of the cases. Such variations in dosage are hardly detectable in clinical digitalization. A dose ± 50 per cent of the mean, which would hardly be expected to cause either serious underdigitalization or overdigitalization, includes more than 90 per cent of the cases. There is therefore a sound pharmacologic basis for the validity of the single average full dose method of digitalization. What was needed was a preparation of digitalis which could be given in that way without irritating the stomach. As I have already indicated, digitoxin meets

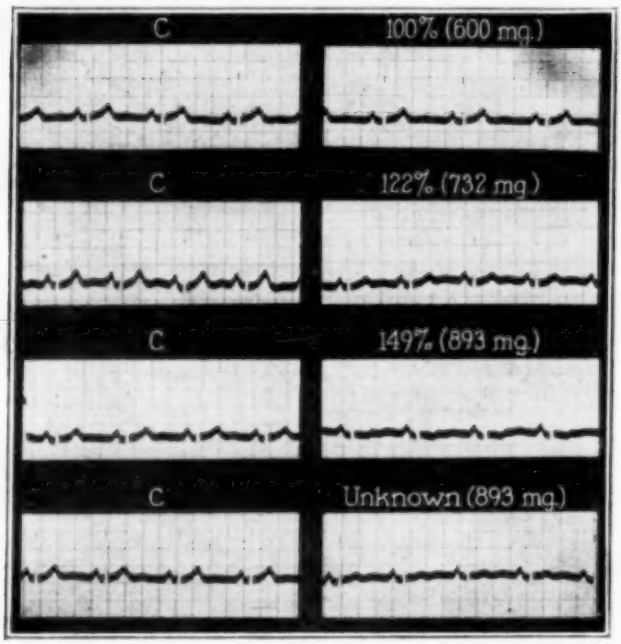

Fig. 7.—Method of digitalis assay in human beings. *C* is control, dose is given orally, and tracing is taken twenty-four hours later. The tracings are matched and ranked. Note that in this case the effect of the unknown falls between the effects of 732 and 893 mg. of the calibrating doses of the Standard digitalis.

that need because of two characteristics. It is so potent and so well absorbed that the approximate mean oral digitalizing dose involves only 1.2 mg. of glycoside, an amount too small to cause local gastrointestinal irritation, also an amount smaller than that required for any other glycoside in common use at the present time.

Cumulation.—The term cumulation is widely applied to the action of the digitalis bodies. It is usually taken to refer to the fact that, if a particular dose which in itself causes little or no effect is given repeatedly, an effect will soon appear and increase in intensity as the dose is continued. There is considerable controversy concerning the precise nature of the phenomenon. We have made some observations which suggest that it represents gradual accumulation of the drug resulting from the fact that elimination falls behind. The behavior of the phenomenon resembles closely the cumulation of other drugs which are slowly excreted, such, for example, as the bromides. If one gives a dose of sodium bromide daily, say about 1 Gm., the bromide concentration of the blood begins to rise, going up to 5, 10, 20, 30, 40 mg. per hundred cubic centimeters. As the dose is continued, however, the cumulation soon comes to an end and the blood concentration continues at that level no matter how long the daily dose of

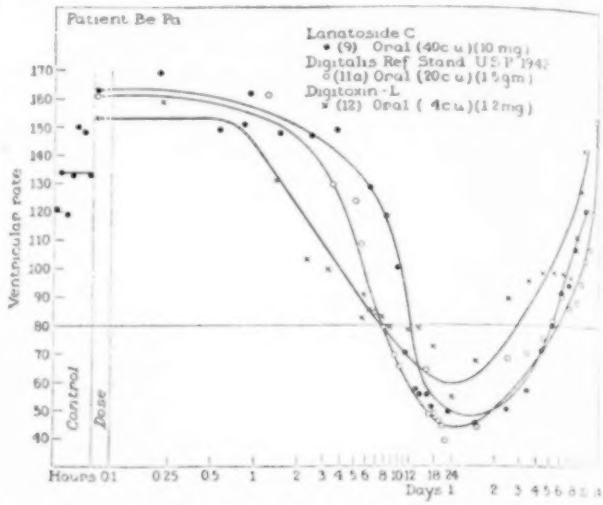
Patient Be Pa
Lanatoside C
• (9) Oral (40c u)(10 mg.)
Digitalis Ref Stand U.S.P. 1942
○ (11a) Oral (20c u)(1.5 gm.)
Digitoxin-L
▪ (12) Oral (4c u)(1.2 mg.)
Ventricular rate
Control
Dose
Hours 0 1 0.25 0.5 1 2 3 4 5 6 8 10 12 18 24
Days 1 2 3 4 5 6

Fig. 8.—Absorption of several digitalis materials in patient with heart failure and auricular fibrillation. Note that substantially similar effects result from 4 cat units of digitoxin, 20 of digitalis leaf and 40 of lanatoside C, owing to differences in absorption.

bromide is continued. Cumulation is therefore a self-limiting process when a fixed daily dose is administered. The same is true of digitalis, although we do not determine it in terms of milligrams of drug but in terms of a pharmacologic effect.[12] Figure 13 illustrates this phenomenon. It shows the rate changes in a group of patients with auricular fibrillation. They received a single daily dose of 0.2 mg. of digitoxin. As the dose

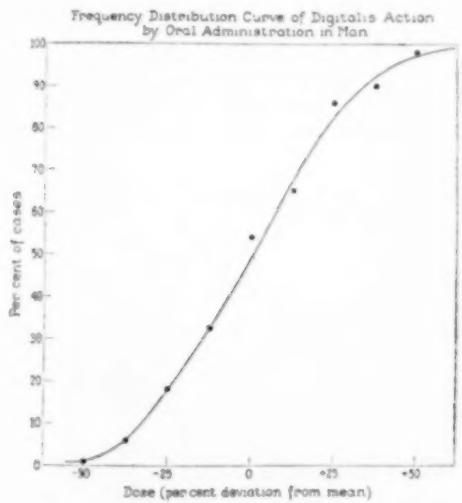
Frequency Distribution Curve of Digitalis Action by Oral Administration in Man
Per cent of cases
Dose (per cent deviation from mean)

Fig. 9.—Note that the most tolerant patient with heart disease requires about three times as large a dose as the most susceptible one. Curve is based on T wave change seen twenty-four hours after the dose.

was repeated, the ventricular rate began to decline. It continued to fall for a period of about two to three weeks, after which it leveled off even though the dose was continued for eight or ten weeks longer. It is clear, therefore, that a fixed daily dose of digitalis produces cumulative effects which are self limiting in

11. Gold, H.; Modell, W., and Otto, H. L.: Federation Proc. **4**: 119 (March) 1945.

12. Gold, H., and DeGraff, A. C.: J. Clin. Investigation **6**: 613 (Feb.) 1929.

a manner similar to that of the bromides. When the dose was discontinued, the effects began to wear off and disappeared completely in about three weeks, resembling in this respect the effects of one large dose such as we have already seen in some of the previous charts.

The time it takes to reach the level varies with different drugs. In the case of quinidine, a fixed daily dose shows increasing effects during only the first three or four days. The effect then levels off, so that the continued use of that dose for months fails to produce any greater effects.

The practical importance of this phenomenon is clear enough. In the use of digitalis the patient receiving a fixed daily dose needs to be observed for from two to three weeks for signs of increasing intensity of action that may lead to poisoning. On the other hand, in the case of quinidine it is only a matter of a few days. If the fixed daily dose does not produce the desired therapeutic effects or poisoning within three or four days it is very unlikely that it will do either if continued for months unless the dose is increased, since the highest concentration on a fixed daily dose is reached within a few days in the case of this drug.

Comparison of Drugs.—I have described the method of assay of digitalis. In principle it means simply determining by how much one preparation is stronger than another, the standard preparation. Materials other than digitalis present the same problems. Let us see what has happened in the case of the cinchona alkaloids, which are of special interest at the present time to the National Research Council and the U. S. Pharmacopeia, having under consideration the substitution of synthetic or dihydroquinidine for quinidine of natural source. Frey [13] in some clinical observations in 1918 showed that quinidine is more effective than quinine in abolishing auricular fibrillation. Lewis and his collaborators [14] in 1921 made experiments in which the difference received a quantitative expression. Their conclusion that quinidine is five to ten times as effective as quinine in slowing the circus movement in the auricle has been widely quoted in the textbooks in the last twenty-five years. The implication is that all one needs to do is to give five to ten times as much in order to obtain the same results. Figure 14 is a chart which we constructed from some of their data. They found that as the dose of quinidine was increased the effect increased, but at about 0.8 Gm. a ceiling was reached. If two compounds are compared at the dosage level of 0.8 Gm. or larger, and the effects are the same, one may still be many times as potent as the other, but the difference escapes detection because, at the ceiling effect, differences cannot be revealed. And it is at this very level of dosage, namely 0.8 Gm., that Lewis and his collaborators compared these drugs.

Dosage Response Curve.—We have repeated these studies [15] with dosage response curves. Out of the preliminary experiments a somewhat different story is beginning to emerge (figs. 15 and 16). Indeed, the results confirm the observation that quinidine is more effective than quinine, gram for gram. It will be noted that as the dose is increased the effect in the case of each drug increases, and that in each case a ceiling effect is reached. But it will also be noted that the ceiling is about twice as high in the case of quinidine as for quinine. Therefore, in the range of a low grade effect, the two drugs are interchangeable. In case the therapeutic effect can be secured by an action equal to circus slowing in degrees up to 20 per cent, either drug will produce it if one uses two to three times as much quinine, but if stronger actions are necessary in the range shown by circus slowing up to 40 per cent, the two drugs are no longer interchangeable. No matter how much quinine is given it cannot match the effect of quinidine in this range. It cannot exceed its

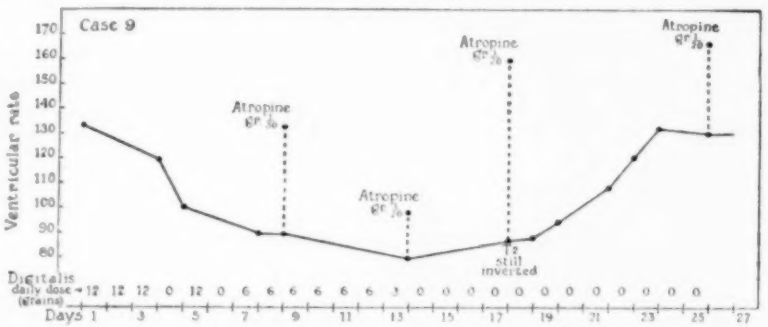

Fig. 10.—Effect of atropine on the cardiac slowing caused by digitalis in patient with auricular fibrillation and heart failure varies with the degree of digitalization.

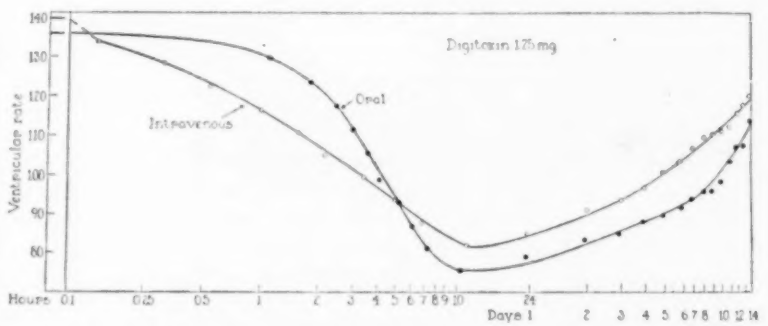

Fig. 11.—Comparison of digitoxin by oral administration and intravenous injection in patients with heart failure and auricular fibrillation. Time is charted in hours after the dose. Curves represent the average results with 9 (oral) and 14 (intravenous) patients.

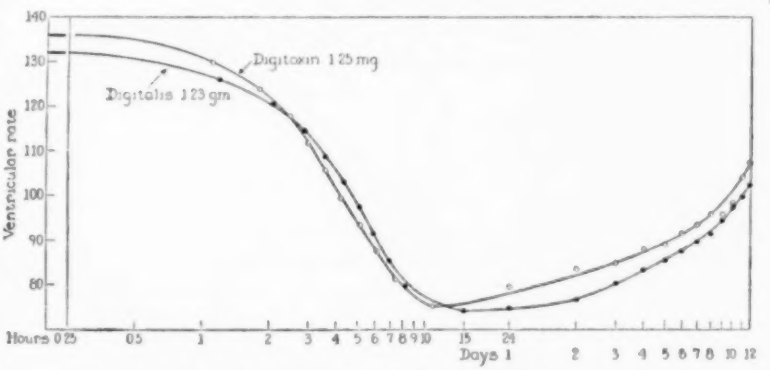

Fig. 12.—Comparison of oral digitoxin and digitalis in 9 patients with heart failure and auricular fibrillation. The drug was given in one dose. Time is charted in hours after the dose. Note the similarity in speed of absorption and duration of action of digitalis and digitoxin.

13. Frey, W.: Berl. klin. Wchnschr. **55**: 450, 1918.
14. Lewis, T.: Drury, A. N.; Wedd, A. M., and Iliescu, C. C.: Heart **9**: 207 (April) 1922.
15. Gold, H.; Modell, W.; Otto, H. L., and Hanlon, L. W.: Federation Proc. **5**: 179 (Feb.) 1946.

own ceiling. The case of ephedrine and epinephrine on the blood pressure would yield a similar set of results.

I wish to call attention to the fact that the comparison of drugs is a pharmacologic game with a set of rules which must be observed. The results do

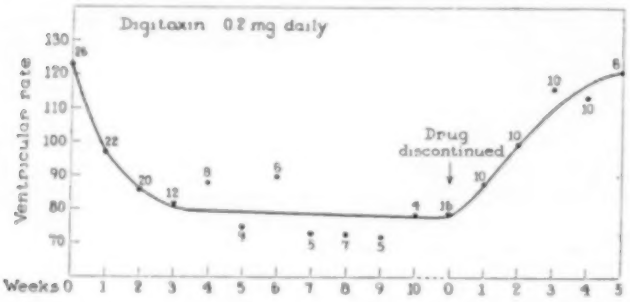

Fig. 13.—Cumulation of digitoxin in ambulant patients with heart failure and auricular fibrillation.

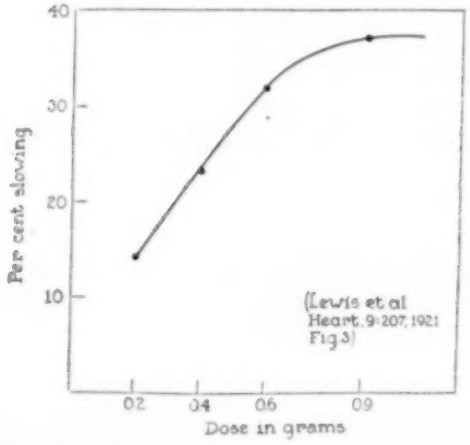

Fig. 14.—Effect of quinidine sulfate on rate of circus movement in patient with auricular fibrillation.

not come out right if the rules are ignored. The dosage response curve, which is the only means of securing information regarding the sensitive range of the physiologic measuring device, is not commonly established in the usual comparisons of drugs on the human subject.

Dosage.—We might now turn to another matter concerning the use of cardiac drugs, namely the principles of dosage. The case of digitalis, quinidine and the mercurial diuretics may be used to illustrate my points, although it goes without saying that basic principles of dosage which operate in the case of these might well be expected to find application to therapeutics in general.

Average Dose.—I have already discussed the use of digitalis in the form of an average digitalizing dose given at one time. The term average dose is freely used in the clinical literature, but there is clearly need for more attention to its full meaning. It is one of the most useful units of dosage, for it represents the quantity of the drug with which a therapeutic procedure may be started. Clearly that amount cannot be expected to produce the therapeutic end point in all patients, because the susceptibility of patients varies. The utility of the average dose will differ from drug to drug. Its utility in the case of any particular drug can be determined by a study of the frequency distribution curve. If the drug in question happens to be one in which the curve is fairly steep, which means that individuals do not show very wide differences in susceptibility, the average dose is extremely valuable; for in that case the average dose will exert the specific effect or something very close to it in the large majority of people. On the other hand, if the frequency distribution curve is fairly flat it indicates that there are relatively wide differences in susceptibility from individual to individual and that satisfactory effects are not likely to be obtained from the average dose. I have pointed out how the approximate average dose is expected to behave in the case of full digitalization. That dose is based on the whole range of cardiac patients, ambulant, bed patients, those who are in moderate failure and those who are in advanced failure. Disappointments have been voiced over the fact that this dose has failed to produce the desired effects in a limited range of experiences.[16] Isn't that precisely what should be expected from any average dose? Is it to be expected that it will fit the individual case any better than an average sized hat fits any particular head?

Perhaps our experience with the average daily maintenance dose of digitalis will help to clear the point (fig. 17). This chart shows the effect of 0.2 Gm. of

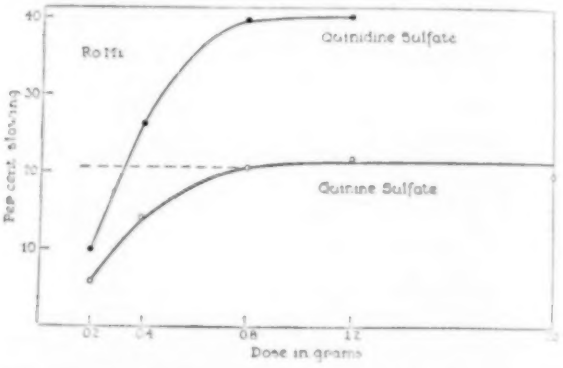

Fig. 15.—Effect on rate of circus movement in patient with auricular fibrillation. The dose of drug was given on an empty stomach and electrocardiograms were taken at two hour intervals for the greatest effect; it usually occurred in two to four hours after the dose. Interval between doses was two to three days.

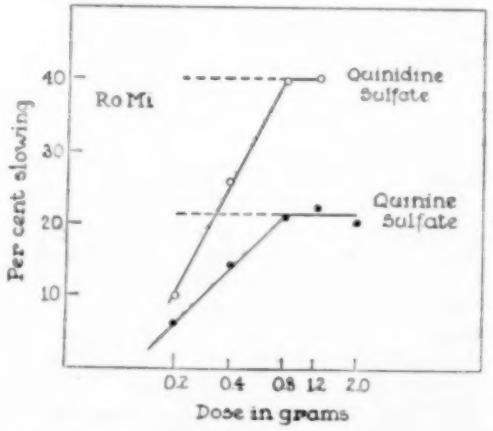

Fig. 16.—Effect on rate of circus movement in patient with auricular fibrillation. Same as figure 15 but charted in log of dose.

digitalis given daily to 40 ambulant patients with auricular fibrillation. The desired effect is to maintain a rate of 70 a minute. When this dose is given to a large group of patients for a period of four weeks the rate is rarely exactly 70 a minute for any given

16. DeGraff, A. C., and Batterman, R. C.: M. Clin. North America **26**: 929 (May) 1942. Stewart, H. J.: New York State J. Med. **45**: 1676 (Aug. 1) 1945.

patient, but a result sufficiently close to that is obtained in about 70 per cent of the group, namely a rate ranging between 60 and 90. The rest are either too tolerant and maintain rates up to 100 or faster or are so susceptible as to attain the rates of 40 or slower. That does not erase the importance of an average dose. It is still

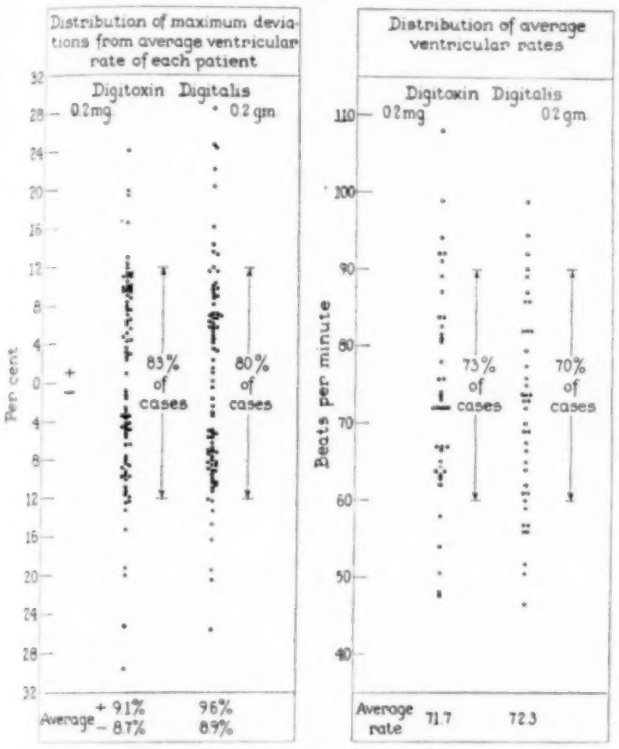

Fig. 17.—Comparison of digitoxin with digitalis in human beings (maintenance doses).

one of the most useful values in the solution of the problem of dosage. The most useful average dose, from the clinical standpoint, is one which is likely to exert an effect close enough to the desired effect, in a high proportion of patients and with reasonable freedom from toxicity. By these criteria many drugs may fail to qualify, for individual differences in susceptibility may produce too wide a scatter. Unfortunately, few drugs have been properly explored for the true position of their average dose.

Dose for Particular Individuals.—Let us now turn from the notion of the average dose to the dose for the particular case. No one would challenge the simple statement that the optimum dose is the one which produces the maximum therapeutic effect without toxic effects. It is in the method of applying this principle that all the trouble arises. Plans of dosage are too often devised without sufficient regard to the pharmacology of the agent, its rate of absorption, cumulation and persistence of action.

Quinidine.—The case of quinidine is a good example. It is the most important agent we possess for abolishing many disorders of rhythm and for preventing their recurrence. Experiments show that its maximum absorption takes about two hours, so that the peak effect may be expected at that time and that most of the effect wears off in less than twenty-four hours. We have also found in experiments on man[17] that a fixed daily dose shows cumulation for only three or four days, unlike digitalis in which a fixed daily dose may show cumulation over a period of two or three weeks. This signifies that any daily dosage level of quinidine which fails to produce the desired effect in three or four days is likely to fail to do so no matter how long it is continued. I often encounter patients taking a small dose of quinidine for weeks on end without the slightest effect on the abnormal rhythm. The failure could have been predicted after the third or fourth day. The way of insuring success is to base the system on the facts concerning the behavior of quinidine which I have just mentioned. The method we apply in a case in which there is no urgency is to give 5 grains (0.32 Gm.) of quinidine three times daily, or 15 grains (1 Gm.) a day for four days. If the abnormal rhythm is not controlled, the dose is increased to 20 grains (1.23 Gm.) daily for four days. One continues to increase the dose by 5 grains daily every four days until a daily level is reached at which the abnormal rhythm goes or until minor toxic effects preclude its further use. If there is great urgency, as in some cases of ventricular tachycardia, one builds the concentration more rapidly on the peak effect of each dose. In such a case we use 5 or 10 grains every two hours. The total dose in the day may be small or large, but even if large it is without danger because the method has its own protective device, for the dose is continued only until the therapeutic effects occur or minor toxic effects necessitate interruption. By this method failures are few.

Mercurial Diuretics.—The tendency to overlook the principles of dosage which have gone far in establishing sound and effective digitalis therapy is particularly noteworthy in the current application of the mercurial diuretics in the treatment of heart failure. These materials, mercupurin, salyrgan with theophylline and mercuhydrin, represent one of the most noteworthy advances in cardiac therapy in the last twenty-five years. Unfortunately only a small part of the potentialities of these drugs is exploited, since they are commonly

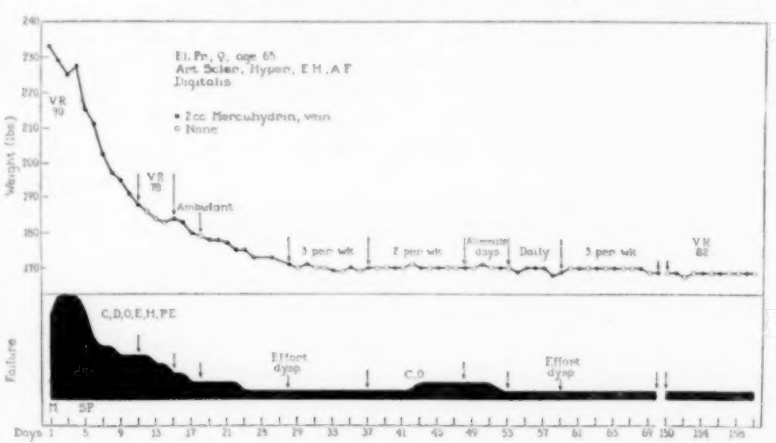

Fig. 18.—Illustration of method of producing the full effects and then establishing the maintenance dose with the mercurial diuretic in the patient with heart failure. Letters refer to symptoms (*C* cough, *D* dyspnea, *O* orthopnea, *E* edema, *H* hydrothorax, *P. E.* pulmonary edema).

reserved only for cases in which there is frank edema or pulmonary rales occur. It deserves emphasis that, in heart failure, edema may be present in the lungs and other tissues long before the usual clinical signs, namely

17. Gold, H.; Otto, H. L., and Satchwell, H.: Am. Heart J. **9**: 219 (Dec.) 1933.

rales and pitting of the legs, that shortness of breath on effort, cough and orthopnea are usually much earlier signs. Patients with heart disease and these symptoms make up the largest group of potential beneficiaries of the mercurial diuretics. Furthermore, the common system of dosage calls for an injection not more often than once in four to seven days, with discontinuance of the drug until edema reaccumulates. It reminds one of the therapy with digitalis around the turn of the century; a course of treatment was given and repeated when signs of failure reappeared. The notion of the maintenance dose to prevent recurrence of failure is of relatively recent vintage. The very mention of a maintenance dose in the case of the mercurial diuretics sometimes gives rise to all the stir and alarm of a new idea. As to dosage, one should note that the organic mercurials are usually eliminated completely or almost so in less than twenty-four hours. A dose may therefore be repeated every day with safety, and, indeed, in cases of advanced failure the results of the daily dose to abolish the failure, and the maintenance dose at suitable intervals to prevent its recurrence, provide us with one of the most dramatic aspects of modern cardiac therapy.[18]

Figure 18 shows how this system may be put into operation. This patient, who was in progressive failure for several years, was now in what appeared to be the very last stages; nearly moribund, gasping for breath, edema from the toes to the neck, the liver to the umbilicus, hydrothorax and ascites, cold and clammy sweat. She had received all the necessary drugs, namely digitalis and mercupurin. She was digitalized to the point of persistent vomiting. She had received several infrequent doses of mercupurin, which seemed to increase the urine output but made the symptoms worse, as a result of which it was discontinued. When she failed to rally she received the last rites. It required much persuasion to secure the privilege of subjecting this patient to a daily dose of the mercurial when doom seemed so certain. From the character of the symptoms, doom seemed no less certain in the first five days of treatment. The only encouragement came from the daily body weight. It began to decline from the very start. There was a long lag in the symptoms; they showed distinct improvement only after a loss of nearly 20 pounds (9 Kg.). When the daily dose was interrupted the improvement was halted. In seventeen days the patient was ambulant and nearly free from symptoms. She had lost about 65 pounds (29.5 Kg.) to reach her "dry weight." The method of trial and error established the maintenance dose, namely the dose which served to maintain the "dry weight." It turned out to be one dose three times a week. At the time of this chart it had been in use for about four months; it is now more than a year. It is noteworthy that in the case of the mercurial diuretics an accurate chart of the body weight may be put to substantially the same use as the heart rate for the patient with auricular fibrillation treated with digitalis, or the fever chart in the case of infection treated with penicillin.

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TABLE 3.—*Potency of Digitalis Materials by Different Methods of Assay*

Preparation	U. S. P. Unit (Cat Method)	U. S. P. Units (Human Method)
1. Digitoxin	1	5.55
2. Gitalin	1	1.81
3. Indian urginin	1	0.51
4. Lanatoside C	1	0.50
5. Digitalis leaf	1	0.56
6. Digitalis leaf	1	0.59
7. Tincture digitalis	1	0.76
8. U. S. P. XI reference digitalis	1	0.80
9. Digitalis tablets	1	0.87
10. H. A. No. 9 leaf	1	0.87
11. Digitalis leaf	1	0.95
12. Digitalis tablets	1	0.97
13. Digitalis leaf	1	1.46

TABLE 1.—*Human Assay of Digitalis*

	Calibration with U. S. P. Reference Digitalis						Unknown Preparation		Mg. of Reference and Unknown Which Produce Equal Effect	Ratio of Doses (%)
	100%		122%		149%					
Case	Mg.	Effect	Mg.	Effect	Mg.	Effect	Mg.	Effect		
		1+		2+		3+				
Se. Go.	600	1+	732	2+	893	3+	893	2+	732 R = 893 U	122
Me. Ro.	400	1+	488	2+	600	4+	600	3+	544 R = 600 U	110
Da. St.	600	0	732	1+	893	2+	893	1+	732 R = 893 U	122
Ye. Sh.	270	1+	336	1+	400	3+	400	2+	365 R = 400 U	110
Id. Ru.	600	0	732	2+	893	3+	893	1+	666 R = 893 U	134
Ge. Bo.	600	0	732	3+	893	2+	893	1+	666 R = 893 U	134

100 mg. standard equals 122 mg. unknown.

Average 122
S. E. ..... ±3.6%

TABLE 2.—*Reassays of Digitalis Preparations by Human Method*

Preparation	Date of Assay	Patency
Ref. 1942	February 1943	104.5
	August 1943	102.2
	September 1943	107.7
H. A. No. 9	April 1943	107.1
	January 1944	102.4
Dl. capsules	September 1941	77.8
Dl. tablets	October 1941	82.0
Dl. tincture	October 1941	86.9
Dl. second tr.	January 1942	77.5

18. Gold, H.: New York State J. Med. **46**: 62 (Jan. 1) 1946.

Smoke.—There exists a direct and highly significant relationship between air pollution and infectious diseases of the respiratory tract in man. This hazard involves principally the men living in the most heavily industrialized city districts and breathing its polluted air. In its overall aspects this respiratory disease situation is probably fully comparable in severity with the enteric disease picture so completely altered long ago by city water purification.—Mills, Clarence A.: The Relationship of Smoke to Infections of the Respiratory System, *Cincinnati Journal of Medicine*, September 1946.

MODERN CONCEPT OF THE NEUROSES

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It is conservatively estimated that 50 per cent of all cases seen in general medical clinics are primarily psychiatric problems, most of which would be labeled neuroses. A prominent cardiologist has stated that over half the cases referred to him are cardiac neuroses and not organic heart disease. If, then, the neuroses are seen so frequently in all fields of medicine, it seems desirable to present a paper on the subject before this audience.

There is no commonly accepted definition of the term neurosis. Some of the older writers differentiated carefully between the neuroses, which were considered organic diseases with a definite physical basis, and psychoneuroses, which were thought to be of mixed origin with the psychologic factors regarded as the more important ones. Beard described neurasthenia as due to an organic nervous exhaustion.

Freud originally separated the true neuroses, which he felt were physiologic in origin. In his earlier writings he described neurasthenia as follows: "Pure neurasthenia, which after it has been differentiated from anxiety-neurosis presents a monotonous clinical picture (exhaustion, sense of pressure on the head, flatulent dyspepsia, constipation, spinal paraesthesias, sexual weakness, etc.) admits of only two specific aetiological factors, excessive onanism and spontaneous emission. . . ."

Modern medical practice makes the use of the terms neurosis and psychoneurosis almost interchangeable. There are, however, numerous papers which use the term neurosis in a more organic fashion. For example, a recent article by Bennett devotes several pages to what are called the vasomotor neuroses. Such conditions as erythromelalgia, causalgia and scleroderma are included. Until more is known about the etiology of such diseases, the term neurosis will continue to be used for clear-cut organic syndromes and for borderline conditions as well as for those of psychologic origin. In the present paper the terms neurosis and psychoneurosis will be used interchangeably.

Time does not permit discussing the historical development of the various concepts of the neuroses. Two illustrations may be of interest in showing that the modern concept of sexual repression as a factor in the production of hysteria was well recognized by the ancient Greeks. Over 2,000 years ago Plato wrote: "The matrix is an animal that longs to generate children. When it remains barren for a long time after puberty it feels it difficult to bear, it feels wroth, it goes about the whole body closing the issues for the air, stopping the respiration, putting the body into extreme dangers, and occasioning various diseases, until desire and love, bringing man and woman together, make a fruit and gather it as from a tree."

Hippocrates thought that temperament depended on the four humors—blood, black bile, yellow bile and phlegm—and that the corresponding temperaments were sanguine, melancholic, choleric and phlegmatic. One of his women patients was thought to have hysteria due to "a dislocation of the humors." He recommended that she be treated by "indulging the intentions of nature and lighting the torch of Hymen."

Throughout history one finds various descriptions and interpretations of the psychoneuroses. The religious point of view held sway for a great deal of this time, and persons were regarded either as great religious leaders or as possessed of the devil, depending on the particular conditions that prevailed at that time. During the witchcraft scares of the sixteenth century a spot of hysterical anesthesia was known as the witch's claw and was supposed to indicate the spot where the devil had touched the person in sealing the compact whereby he sold his soul to the devil. It is only during the last one hundred years that there has been a general recognition of the neuroses as a form of sickness belonging to the field of medicine. Even today there are those who deny that such is the case and feel that these problems belong to religion, education, psychology or some other field.

Starting with the work of Charcot, Janet, Breuer and Freud, and followed shortly after with the work of Adolf Meyer, there has been built gradually a large amount of scientific knowledge concerning these disorders. Even today there is no common agreement among members of the medical profession or even among psychiatrists concerning many of the formulations. At present, however, the generally accepted approach is the biologic approach. Man is regarded as a highly complex and constantly changing organism, adjusting to a highly complex and constantly changing environment. He can be studied and understood by all the methods employed in studying other organisms. He can only be understood as a social being who lives in a society and a culture which determine his attitudes and behavior. His capacities and limitations are determined by heredity, and as a being of living protoplasm he is affected by the physical factors of his environment. There are, therefore, an almost limitless number of variables which determine his behavior and which may produce maladjustment.

Mental disease, like all disease, may be regarded as a failure of the organism to adjust adequately to its environment. All disease is an indication that the organism is incapable of adapting itself to the demands of life. Mental disease is not something for which one is to be praised or condemned; it is a medical, not a moral, problem.

There is a great variety of mental disorders, each with different symptoms and causes. Some are benign; others are malignant. The more serious mental disorders are called psychoses. The terms minor psychosis, neurosis or psychoneurosis are given to a group of milder mental disorders. Such a descriptive term as minor psychosis is, in my opinion, useful and does give the correct concept of the nature of a psychoneurosis. If one attempts to describe a psychoneurosis in terms of the reaction or behavior of the patient, one is at once involved in difficulties in differentiating between a so-called true psychoneurosis and a psychoneurotic reaction as a part or symptom of some other disease.

Early brain tumors, for example, are often diagnosed as psychoneurosis or hysteria. The reason for this is that certain symptoms of a psychoneurotic type are present. At the time of examination no organic or neurologic signs can be detected. By a process of exclusion the patient is labeled psychoneurotic. This

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diagnosis of psychoneurosis on the basis of no apparent organic cause is a common practice open to considerable criticism. A diagnosis of psychoneurosis should be on a positive basis and not merely on a negative one. The fact that no organic sign can be detected does not mean that one is not present which is the essential cause of the patient's reactions. It must be realized that in the early stages of many serious organic brain diseases such as general paresis, multiple sclerosis and brain tumor, the physician may encounter a syndrome which appears to be that of a psychoneurosis. It has also been shown that with dietary deficiency, especially of vitamin B_1, a psychoneurotic syndrome may be produced.

The first question is, should these conditions be labeled psychoneurosis or should use of the term be restricted to those manifestations without any organic basis? Assuming that one wishes to restrict it to those of psychogenic origin, one is immediately confronted with the so-called mixed picture. This question comes up particularly in cases of delayed recovery. Work carried on at the Langley Porter Clinic by Ruesch and his associates indicates that delay in recovery from head injury, thyroidectomy and ulcer is often determined not by the severity of the disease itself but by the psychologic attitude of the patient.

Sometimes the term "nervous disorder" is heard. It is used in two senses: first, to indicate a neurologic disorder, such as multiple sclerosis, and second, to indicate a mild type of mental disorder. Families will say "There is nothing wrong with him mentally, he is just nervous." There are those who call the neuroses "nervous disorders or a nervous breakdown" and insist they are not mental disorders.

Janet once said that the only difference between the neuroses and the psychoses was how much money a patient had. If he had plenty of money he remained at home with private nurses and was said to have a nervous breakdown. If he had no money he was sent (to quote Janet) to "a lunatic asylum" and was said to have a psychosis.

There is no satisfactory simple definition of a psychoneurosis. The symptoms are extremely variable, and a large percentage of them are merely exaggerations of responses which all normal persons have. In fact, one attempt at defining psychoneurosis is to say that a person is a psychoneurotic, who habitually behaves in a psychoneurotic fashion. All persons at times behave this way. This concept would indicate that there is no fundamental difference between the psychoneurotic and the normal person. The difference is quantitative rather than qualitative.

Another way of dealing with the problem is to speak of the psychoneurotic syndrome, or, following Adolf Meyer's concept, to speak of the psychoneurotic reaction type. Such a method avoids considering the psychoneuroses as clear-cut disease entities. It rather regards them as a series of varying types of reaction brought about by multiple causative factors which vary from case to case. For those who consider the psychoneuroses as disease entities, there is no question of a single disease, but rather of a large number of diseases with different symptomatology and different causation. Thus neurasthenia and hysteria have for a long time been regarded as fairly clean-cut entities with a specific set of symptoms, and, by many, with clear-cut but different etiologies. The modern concepts of psychiatry have attempted to solve this dilemma by doing away with the dichotomy of mind and body. Psyche and soma, or mind and body, are considered merely as partial aspects of the total personality. It is even held that there is no such thing as a purely psychologic or a purely physiologic process. This has led to some of the present concepts often referred to under psychosomatic medicine; formulations which attempt to explain physical symptoms on an emotional basis. There has been a general inclination to think in terms of a single causation. This has varied from the concept of sexual frustration to the most recent formulation of anxiety.

Based on war experiences, there has developed an over-simplified formulation of the psychoneuroses. Under the new Army classification of psychoneurotic disorders a whole series of reactions are given, but the essential factor stressed in all cases is that they arise in persons already sensitized or conditioned by repressed childhood experiences. It is felt that a return of the original symptomatology may be precipitated by any acute emotional trauma. Anxiety is considered the core of all psychoneurotic reactions. The person is aware of this anxiety, feels threatened by it and endeavors to handle it by various methods. The conversion reaction or conversion hysteria results in the conversion of anxiety into functions of the organs or parts of the body. An attempt is made to differentiate this from what are called somatization reactions. In these latter conditions it is felt that the anxiety becomes attached to visceral organs through the autonomic nervous system, whereas conversion hysteria is thought of as a symbolic reaction affecting organs under conscious control.

The so-called organ neuroses as well as many conditions studied under psychosomatic medicine fall into this somatization group. Against all attempts to simplify the neuroses and bring in some single common factor, there is the view which probably comes principally from Adolf Meyer. This view holds that there is a plurality of causes, and that each case is highly individual and must, therefore, be studied not in the light of some preconceived concept of a simple etiology, but rather in the light of the entire life history of the patient.

There is much controversy with regard to the role of heredity and constitutional factors in causing neuroses. Some consider constitution the all important cause and feel that psychoneurotics are born, not made. Others regard constitution as of little importance. Most persons think that Freud belonged to this latter group. You may be interested in a quotation from his paper, "Heredity and the Aetiology of the Neuroses."

"As for the aetiology of the neuroses, I think we should recognize that the various aetiological factors, differing in their importance and in the way in which they are related to the effect they produce, may be arranged theoretically in three classes: (1) *conditions* that are indispensable for the production of the disease in question, but which are of a universal nature and occur as well in the aetiology of many other diseases. (2) *Concurrent causes* that share with the conditions in group (1) the characteristic of entering into the causation of other diseases as well as into that of the disease in question, but which are not indispensable for the production of the latter disease. (3) Specific causes just as indispensable as the first conditions but appearing only in the aetiology of the disease for which they are specific.

"Now, in the pathogenesis of the major neuroses heredity plays the part of a *condition*, potent in all cases and even indispensable in the majority of them. It cannot do without the assistance of the specific causes; but the importance of hereditary predisposition is demonstrated by the fact that the same specific causes operating on a sound person would produce no manifest pathological effect, while its presence in a predisposed person will precipitate a neurosis, the development of which will in intensity and extent be proportional to the degree of hereditary predisposition."

Another classification concerning which there is considerable difference of opinion is the so-called character neurosis. Attempts to differentiate character neurosis from psychopathic personality on the one hand and psychoneurosis on the other have led to many difficulties. The concept back of the term character neurosis is that it is primarily a personality deviation caused by conflicts and difficulties of adjustment during the early years of life. Some would class it under the psychoneuroses. It is apparent, therefore, that there is a wide divergence of opinion as to what is to be included under the term neurosis or psychoneurosis, and that even these two terms are not always used interchangeably.

CONCLUSIONS

The term neurosis is used to describe certain organic diseases involving the nervous system in which there may be no mental symptoms, to describe certain conditions of psychologic origin and, finally, to describe some mixed pictures. The term is commonly used synonymously with the words psychoneurosis, nervousness and nervous breakdown. Under the general use of this term are included several conditions which have different symptomatologies and different etiologies. One commonly distinguishes between a psychoneurosis and a psychoneurotic reaction. The true psychoneurosis is generally held to be on the basis of mental conflict, which is more or less unconscious and repressed. It is generally agreed that there is a variable constitutional factor which is large in some cases and small in others. Psychoneurosis is a method of solving life's problems; it is inferior, inadequate and unhealthy, but it is an attempt at their solution.

The psychoneurotic reactions are generally considered to be reactions with similar symptoms, which are either based on simple organic factors like vitamin B_1 deficiency, anemia or some similar process or are so brief and transitory that they are not felt to be true psychoneuroses. Combat fatigue and operational fatigue are held by many to belong to this group, since it is felt that they commonly arise in persons of fairly good constitution and if properly handled are brief and transitory reactions. The symptoms in the true psychoneuroses are extremely varied; there is commonly a mood disorder, which is usually anxiety or depression and feelings of inadequacy. The intellectual functions are seldom involved. Delusions and hallucinations seldom occur. The patient usually has some degree of insight in that he realizes that he is sick and needs help. The psychoneuroses must be differentiated on the one hand from the psychoses or more severe types of mental disorders, and on the other hand from psychopathic personalities.

The psychoses are the more serious mental disorders and correspond to what the layman calls insanity. It is a debatable question whether a psychoneurosis goes on to develop into a psychosis. The classical argument between Janet and Jung may be mentioned in this connection. Janet insisted that certain psychoneuroses went on to develop into dementia precox. Jung denied this but said that certain cases of dementia precox might start with psychoneurotic symptoms. Many organic diseases such as general paresis, cerebral arteriosclerosis and brain tumor may start with a psychoneurotic syndrome.

At the other end of the scale, it is often difficult to differentiate between what is called a character neurosis and what is known as a psychopathic personality. The concept of psychopathic personalities implies a greater degree of constitutional involvement, a character defect which is innate. The concept of character neurosis implies a deviation which has developed in relation to conditioning experiences and mental conflict. There is much controversy as to the cause of the true psychoneuroses. It is almost universally agreed that there is a constitutional factor of varying degree. There is no general agreement as to whether this is an inherited trait. The precipitating cause seems to be a mental conflict which is at a more or less unconscious level. This usually occurs in a person who has had many childhood conflicts and have given evidence of definite inadequacy and difficulty in adjustment throughout life. Organic factors of varying types may contribute to the picture. Psychoneurosis, then, should be regarded as of mixed origin and not due to a single cause. Each case should be thought of as individual in origin, and its factors must be worked out on this basis.

Diagnosis should not be made purely on the basis of the symptomatology presented. It must be remembered that early cases of organic brain disease may present a psychoneurotic syndrome long before there are any positive neurologic observations. Therefore, their absence does not make the diagnosis of psychoneurosis certain. The diagnosis should be made on a positive basis, not by exclusion. As said before, the disease commonly presents a mixed picture and the constitutional, physiologic, and psychologic factors must all be evaluated in arriving at a correct diagnosis.

Treatment should be based on securing the maximum results in the shortest time with the least amount of suffering for the patient. Time does not permit a discussion of all the different technics of psychotherapy. The present attitude of psychiatry is for shorter technics of treatment, and there are many of the psychoanalytic school who no longer argue that most patients require the hour a day, five days a week, treatment for one to two years. It has been clearly demonstrated that good clinical results can be achieved by briefer technics. One may employ hypnosis, drugs or a simple, frank discussion with the patient as a means of bringing up the fundamental problems. Whether a man is ever completely cured is an academic question which may be raised in all fields of medicine and which does not merit lengthy consideration.

In order to prevent the psychoneuroses, one would theoretically start with eugenics, but knowledge in this field is so limited that one is unable to offer much of value. From a practical point of view, the most important factors seem to be the family relationships and the culture in which one lives. Attention should be given to the development of healthier attitudes on the part of parents, and a healthier social attitude toward neuroses should be encouraged.

RECOGNITION AND TREATMENT OF EARLY VITAMIN DEFICIENCY STATES

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The significant role of adequate nutrition in the maintenance of health and the treatment of disease has become increasingly evident in recent years. Elaborate educational programs and costly advertising campaigns have made the public diet and vitamin conscious. Numerous surveys of eating habits and food consumption have been made in various sections of the country and have shown a high prevalence of diets which do not meet the recommended daily allowances of the National Research Council. The problems of postwar economic adjustment and the rising cost of living are increasing the food problems of the large group of wage earners with fixed incomes. (Reports from abroad tell of a famine of almost worldwide proportions and unparalleled severity, and raise the question as to how much of this country's supply of grain and other food essentials can be shipped abroad without seriously reducing the American diet.)

TABLE 1.—*Factors Resulting in Avitaminosis*

Inadequate Intake
1. Anorexia, nausea, and vomiting due to gastrointestinal disorders, congestive failure, pregnancy or infectious disease
2. Self-imposed or therapeutic restriction, psychoneurosis, chronic alcoholism, fads, ignorance, poverty
3. Improper cooking and processing
Poor Absorption
1. Gastrointestinal disease, loss of mucosal integrity, hypermotility, fistulas, obstructive jaundice, Wangensteen suction
2. Vitamin deficiency, sprue syndrome
Decreased Utilization
1. Hepatic disease
2. Malignant disorders
Increased Excretion
1. Lactation
2. Parenteral fluids
Destruction
1. Alkalis, sulfonamide compounds, arsenic
Increased Requirements
1. Fever, infection, pregnancy
2. Metabolic disorders (diabetes, hyperthyroidism)
3. High carbohydrate diet, large doses of a single purified vitamin

There seems to be little likelihood that the severe deficiency diseases seen in the past years will reappear. The progressive decrease in the number of patients exhibiting beriberi, scurvy and pellagra is familiar to all and can be verified by statistics from any state board of health. This decreasing frequency of frank deficiency states has focused attention on early or "subclinical" avitaminosis. It would seem reasonable to assume that all grades of vitamin deficiencies exist, from those exhibiting the characteristic clinical features of beriberi, scurvy and pellagra to those totally unrecognizable by present diagnostic methods. The chief concern of physicians at present is with this latter group of patients, who have suggestive symptoms but no tissue changes recognizable by physical examination. Since the deficiencies most commonly seen are those of the B complex, this discussion will emphasize the recognition and treatment of early deficiencies of the B complex.

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DIAGNOSIS

Recognition of Factors Predisposing to Deficiency States.—Since avitaminosis may be produced by several mechanisms (table 1), it is important first to determine by history, careful physical examination and accessory studies whether or not there is some underlying disturbance leading to faulty absorption and utilization or to increased excretion or metabolism. Often many contributing factors are found in a single patient. Any patient with gastrointestinal disease, particularly if he has anorexia or nausea, should have his previous nutritional history carefully evaluated. Whenever a history of prolonged hypermotility, loss of mucosal integrity or diarrhea is elicited, poor absorption must be considered. In such patients the resulting loss of nutritional substances increases the intestinal irritability and completes the vicious cycle.

It is well to remember that in patients with digestive disturbances who have been on greatly restricted diets or have been unable to eat adequately, deficiencies of the B complex may be precipitated by the intravenous administration of large amounts of fluids and dextrose. The water-soluble B complex may be literally washed out, and the excessive carbohydrate may induce deficiency states, particularly deficiencies of vitamin B_1. Recent work has also demonstrated that intestinal bacteria which can synthesize some of the members of the B complex may disappear after the oral administration of a sulfonamide compound, especially one of the poorly soluble types.[1] Thus it would appear that sulfonamide therapy may contribute to a deficiency of the B vitamins by depriving the patient of the amounts normally synthesized.

Dietary History.—When no underlying factors can be found to account for symptoms suggestive of vitamin deficiency, the possibility of an inadequate dietary intake must be considered, and in such cases the dietary history is of extreme importance. The grossly deficient diet can be recognized without difficulty. Particular attention should be given to patients on reduction diets and to those whose diets are highly restricted because of peptic ulcer or diabetes, or for any other reason. Patients whose diets have been questionably deficient constitute a much more difficult problem. Unfortunately, the average practitioner does not have the time to elicit a careful, detailed dietary history or the training in the methods of calculation and analysis required to interpret it. Furthermore, the patient is often an inaccurate observer, and the information obtained may be unreliable. Even the best dietary history does not take into account variations in cooking habits or defects of absorption and storage.

Physical Examination.—The earliest signs and symptoms of mild deficiency states are listed in table 2. The first physical changes caused by depletion of the B complex are probably those involving the tongue and the

1. Najjar, V. A., and others: The Biosynthesis of Riboflavin in Man, J. A. M. A. **126:** 357 (Oct. 7) 1944.

mouth. The tongue usually shows an increase in color, and the fungiform papillae may appear abnormally prominent. Papillary atrophy begins on the margins of the tongue; eventually the entire tongue may become denuded, and superficial ulcers may appear. Spongy, granular hypertrophy of the gingival margins and fissures at the angles of the mouth may accompany these changes. Such findings would immediately focus attention on the possibility of avitaminosis, and they do not require any particular elaboration. It is important to recognize, however, that even these well known manifestations of vitamin deficiency are not pathognomonic. Cheilosis, which is usually ascribed to a depletion of riboflavin, may be caused by a deficiency of other members of the B complex as well, or may result from poorly fitting artificial dentures or poor oral hygiene. Similarly, changes in the tongue may not be due to a depletion of niacin alone, as is commonly believed.[2]

Diminution of vibratory sense over the extremities is often an early finding in deficiencies of the B complex. Alterations in epidermal structures are more apt to occur as a later manifestation, and may occasionally be due to a lack of vitamin A rather than to a deficiency of the B complex.

Accessory Laboratory Findings.—General laboratory data are of little help in the majority of patients with early vitamin deficiencies. The blood picture may be entirely normal, or it may show a moderate degree of anemia, which in my experience is most frequently of the normocytic, hypochromic type. Urinalysis and determinations of the total serum proteins, the albumin-globulin ratio and the basal metabolic rate may all be within normal limits. Gastric analysis and examination of the stool do not reveal any findings of specific significance. Esophagoscopy and gastroscopic studies in patients with deficiencies of the B complex usually reflect the changes which can be seen in the mouth and the tongue. Roentgenologic studies of the gastrointestinal tract following the administration of barium sulfate may reveal pooling, puddling, segmentation and loss of the pattern of the small intestines; these changes may also occur in a variety of other conditions, however.

In the past few years laboratory procedures have been devised to measure vitamin levels in the blood as well as the amounts excreted in the urine before and after a test dose of vitamins. Low levels of vitamins in the blood and urine may exist without depletion of stores in the tissues, however, and cannot always be considered proof of a physiologic deficiency. In a previous study the use of these procedures was investigated in human subjects with unquestionable deficiency disease, in patients with symptoms suggestive of an early avitaminosis and in normal controls having no complaints and no demonstrable organic disease.[3] This study showed a definite relationship between the clinical picture of the vitamin deficiency and the laboratory findings. The well recognized clinical observation that deficiencies of single vitamins are rare in man was supported by the fact that, in general, patients with unquestionable deficiency states showed lowered levels for most of the vitamins studied.

2. Cayer, D.; Ruffin, J. M., and Perlzweig, W. A.: The Clinical Significance of Glossitis and Cheilosis in Deficiencies of the B-Complex, South. M. J. **38**: 111, 1945.

3. Ruffin, J. M.; Cayer, D., and Perlzweig, W. A.: The Relation Between the Clinical Picture of a Mild or Early Vitamin Deficiency and Laboratory Determinations of Vitamin Levels, J. Gastroenterology **3**: 340, 1944.

Since it is undoubtedly true that biologic and biochemical alterations precede any obvious changes in the tissue, it would appear that latent deficiency disease may be more accurately detected by the use of such biochemical and biologic tests. Unfortunately, however, such procedures still require a well equipped laboratory, and at present remain in the realm of the special investigator.

Interpretation of Symptoms.—The subjective manifestations which occur in persons with subclinical avitaminosis have been emphasized. The multiplicity

TABLE 2.—*Aids in the Recognition of Avitaminosis*

Vitamin	Signs	Symptoms	Accessory Laboratory Data
A	Xerosis conjunctivae, hyperkeratosis	Night blindness	Decrease in plasma A level
C	Gingival hypertrophy, anemia	Spongy bleeding gums, painful joints, subcutaneous hemorrhages	Roentgen changes in long bones, decrease in plasma C level, response to saturation test, capillary fragility
Niacin	Stomatitis, glossitis, cheilosis, papillary atrophy, nonspecific perineal lesions, urethritis, vaginitis, pellagrous dermatitis, depression, reactive psychosis	Nervousness, anorexia, diarrhea, sore mouth and tongue, epigastric burning	Decrease in urinary excretion of niacin
Riboflavin	Magenta glossitis, cheilosis; seborrhea; nasolabial folds, ears, forehead	Eyes: lacrimation, photophobia, discharge; sore tongue and mouth	Vascularization of cornea, decreased urinary excretion of riboflavin
Thiamin	Central opthalmoplegia, symmetrical polyneuropathy, combined system syndromes, cardiovascular disturbances	Weakness, fatigability, paresthesias—burning, calf tenderness, edema	Nerve degeneration as shown by biopsy, decrease in urinary thiamin excretion
K	Hemorrhages, with disorders of absorption or jaundice	Bleeding	Increased prothrombin time, other evidence of hepatic disease

TABLE 3.—*Symptoms Described as Manifestations of Early Vitamin Deficiency*

Fatigue *	Headache *	Apprehension *
Insomnia	Irritability *	Decreased output of work
Anorexia *	Dyspepsia *	Weakness *
Vertigo	Depression *	Lassitude *
Paresthesia *	Abdominal discomfort	Muscle pain
Palpitation *	Muscle weakness *	Anxiety
Nervousness *	Backache *	Confusion

* Each symptom marked with an asterisk is given also as a symptom of neurasthenia in the standard textbooks of medicine.

of symptoms which have been ascribed to early deficiency states is seen in table 3. The similarity between these symptoms and the varying and ill defined complaints described in neurasthenia is all too obvious. It is of the utmost importance, however, to recognize that the two conditions may coexist, since neurotic persons often have food phobias and hence are likely to eat an inadequate diet. The difficulty of determining whether or not a subclinical deficiency is present in a patient with the symptoms described, combined with the fact that purified vitamin substances are relatively nontoxic even in huge doses, has often resulted in prolonged,

indiscriminate administration of expensive vitamin substances without accurate scientific evaluation. It has been shown that the administration of vitamin supplements to patients not having an underlying deficiency does not produce any increase in general health or well-being.[4]

The Therapeutic Trial.—It is a practice of many physicians to administer vitamins as a therapeutic test in cases in which the dietary history and the patient's symptoms would indicate an underlying deficiency state. If such a trial results in rapid disappearance of symptoms and definite improvement, the suspected diagnosis would appear to have been sound. However, mild subjective improvement in a patient having vague and poorly defined symptoms is extremely difficult to evaluate. Improvement will often follow the administration of mild sedatives, antispasmodics or even placebos. The psychic effect of therapy was emphasized in a study of 200 asymptomatic persons without evidence of organic disease, some of whom were given vitamin supplements in various forms for a period of thirty days, while the rest received placebos. The improvement noted in general well-being was the same in the two groups. Thus it appears obvious that too great a significance should not be attributed to moderate subjective improvement alone.

TREATMENT

The basic treatment of early primary deficiency states is to induce the patient to take an adequate diet, provided that he is able to eat it. Food undoubtedly contains still unrecognized factors necessary in minute amount for proper nutrition. These are not present in purified combinations of vitamins. The constituents of a well balanced diet are being increasingly emphasized and brought to the attention of the public. Table 4 shows the principal sources of the vitamins. Patients with mild avitaminosis should be advised to include in

TABLE 4.—*Foods as Sources of Dietary Essentials* *

A	Thiamin	Niacin	Riboflavin	C
Dairy Products: Eggs, Liver, Vegetables: Green, Yellow	Cereals, Meats	Meats	Milk	Citrus Fruits, Vegetables
Greens	Pork	Liver	Liver	Grapefruit
Carrots	Beef	Brewers' yeast	Brewers' yeast	Oranges
Liver	Veal	Yeast	Milk	Strawberries
Squash	Ham	Pork	Prunes	Cantaloupe
Sweet potato	Brewers' yeast	Bran	Fish	Cabbage
Eggs	Whole wheat bread	Salmon	Beef	Turnips
Milk	Dried beans	Poultry	Beans	Potatoes
Cheese	Peas	Beef	Eggs	Tomatoes
	Enriched bread	Peanuts	Pork	
	Oatmeal		Peas	

* Food and Nutrition Committee of American Medical Association and Food and Nutrition Board of National Research Council.

their daily diet 1 pint (0.5 liter) of milk, whole or skimmed, one serving of cheese, one to two eggs, one adequate serving of meat, fish or poultry, two leafy green vegetables and one yellow vegetable (these may be cooked or raw), one whole grain cereal with milk or cream, two slices of enriched bread with butter, fruit juice and fresh or cooked fruit. These items, if properly chosen, need not be expensive. To them the patient may add any other foods of his own choosing.

In addition to such a diet the physician may prescribe therapeutic doses of the specific substances listed in table 5. He should be familiar with the particular product which he chooses to dispense and should compare the dosages listed on the label with the therapeutic requirements given in the table. It will be seen that the suggested therapeutic doses are five to ten times the recommended daily allowances. Since single deficiencies rarely occur in man and since the metabolic functions of the members of the B complex are closely related, this group of vitamins should always be administered together.

TABLE 5.—*Daily Dietary Allowance of Vitamins for Adults* *

Vitamin	Recommended Men (70 Kg.) Moderate Activity	Recommended Nonpregnant Women (56 Kg.) Moderate Activity	Minimum	Therapeutic Dose
A, international units	5,000	5,000	4,000	25,000
Thiamin, mg.	1.8	1.5	1.0	10-20
Riboflavin, mg.	2.7	2.2	2.0	5-15
Niacin, mg.	18	15	10	100-150
Ascorbic acid, mg.	75	70	30	100-300
D, international units	400			

* Food and Nutrition Board, National Research Council.

In cases in which actual deficiencies exist the use of potent purified vitamin compounds is usually followed by a satisfactory response within one to three weeks. A trial of brewers' yeast or whole liver is advisable when this response does not occur. If it is not effective, it may be necessary to resort to parenteral administration. No benefit can be anticipated unless an actual need for therapy exists, and there is probably no justification for continuing such treatment over long periods of time.

In this country deficiencies of the fat-soluble vitamins are relatively uncommon in adults and when they occur are usually secondary to hepatic disease or to some other disturbance of absorption. Often the disturbances of absorption can be corrected by the intramuscular administration of liver extract, although response to treatment is usually slower than in deficiencies of the B complex alone.

CONCLUSION

The clinical diagnosis of early vitamin deficiency states is often difficult, particularly when physical findings are absent. It is unwise to make such a diagnosis on the basis of symptoms alone. If a definite history of an inadequate diet is also obtained, a trial of vitamins in therapeutic doses is indicated. In patients who have an actual deficiency, a satisfactory response to oral therapy may be anticipated within one to three weeks. The diagnosis in each individual instance depends on the careful evaluation of symptoms, physical findings, accessory laboratory data and response to specific therapy.

Primary deficiency states can be avoided by the proper selection of foods in the daily diet. Low economic status or reduction in the total food intake to provide for shipment abroad need not reduce the quali-

4. Ruffin, J. M., and Cayer, D.: The Effect of Vitamin Supplements on Normal Persons, J. A. M. A. **126**: 823 (Nov. 25) 1944.

tative value of the diet. An adequate diet is still obtainable in this country, even for families of low income, and in spite of reduction in the total intake to provide for shipment of food abroad.

ABSTRACT OF DISCUSSION

DR. CHARLES F. NELSON, Beverly Hills, Calif.: For the past ten years our research department has been making a study with photomicrographs showing the results of the different deficiencies on most of the tissues of the body—the bone, the retinas, the teeth, all the different glands and all the organs. My associates and I have come to the conclusion that practically every difficulty with the human race has to do with nutrition as it is related to cell chemistry. There isn't any way that one can estimate the need of vitamins by any laboratory facilities that we have to date, but we think that all patients should receive sufficient amounts and proper ratios of minerals, vitamins, proteins and sugar. Most patients are getting too much fat. I think that until physicians are familiar with this whole question of cell chemistry progress in the practice of medicine is not going to advance rapidly.

DR. H. VERN SOPER, Los Angeles: We are highly indebted to the writer of the paper. However, I feel that we are doing in vitamins and in our diets and in our nutrition the same thing that some are doing in the practice of medicine: Too much speculation on one detail rather than a broad, comprehensive view of the patients' problems as a whole. Most vitamin deficiencies must be considered the result of a dietary deficiency. The means by which we evaluate the vitamins in the body is a highly specialized field, but the supplying of vitamins alone does not make up for the physiologic shortages which usually accompany the lack of vitamins. It has been my observation, that giving large doses of vitamins to people who present the symptoms we saw here on the chart was not sufficient. We then prescribed a balanced diet which helped some; but even this was not adequate. It was not until these patients were given a very unbalanced diet especially rich in protein that satisfactory and rapid improvement was noted. I believe that if they have a dietary and vitamin deficiency an average daily requirement is not sufficient to make up for their past losses. It has been my policy to insist that persons who show vitamin and dietary deficiencies have a very high protein diet along with vitamin management. Then, inside of ten days, a decided improvement should be seen in their symptoms. I have found that a high protein breakfast is far more sustaining to the patients during the daylight hours than to have them eat their large protein meal at night and then, twelve hours later, begin the day's work.

DR. J. CRAIG BOWMAN, Upper Sandusky, Ohio: There is a thought that I want to leave with you which I brought up last year. It is that I think we should go further back than simply treating these avitaminoses with vitamins. I believe that the fundamental trouble we are having is due to depletion of our natural vitamin sources. I believe it is going to be the physician's problem to reeducate our people to the fact that we must put back into the soil many of the natural elements which we have taken out and as a consequence of which there is a lack of the proper vitamins and minerals in our food.

DR. DAVID CAYER, Winston-Salem, N. C.: In North Carolina we are intensely interested in this problem. Ten years ago, when patients with pellagra were desired for study, a form letter sent to the county health departments would provide the required number. This is no longer the case. In the past four years we have seen only 2 patients with classic, active pellagra. We attribute this improvement largely to the intake of more adequate diets. However, many persons are still taking diets considered to be inadequate. A tremendous amount of work remains to be done. As Dr. Nelson said, early changes due to a deficiency state are probably widespread in spite of the fact they are difficult to demonstrate by physical signs. We are working on that aspect of the problem now. We feel that not only can the diagnosis be made earlier, but more intelligent specific therapy can be instituted if we are able in some scientific manner to measure the actual requirements of these individuals.

COMPLICATIONS OF INTRATHECAL USE OF PENICILLIN

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The brilliant therapeutic results and the relatively rare toxic reactions from the use of penicillin have led many physicians to overlook its possible toxicity when injected directly into the subarachnoid space. Serious reactions following intracisternal and intraventricular administration, as well as complications of its intrathecal lumbar injection, have been accumulating in the literature. In spite of these reports, one still finds widespread ignorance of the toxic reactions to the intrathecal use of penicillin. These complications prompt us to describe the reactions, analyze their cause and, if possible, find means of avoiding them. With this in mind we are reporting 4 cases and analyzing them in relation to the complications reported by other authors.

REPORTS OF CASES

CASE 1.[1]—A woman aged 45 years had been ill a week with an infection of the upper respiratory tract. She was admitted to Columbia Hospital, Milwaukee, Nov. 9, 1944, with findings of staphylococcic cerebral abscess and meningitis. Intramuscular administration of sulfonamide drugs and penicillin was started immediately and continued with interruptions until Jan. 16, 1945. Fifty thousand units of penicillin in 10 cc. of isotonic solution of sodium chloride was given November 9 and again Nov. 10, 1944. Within an hour after the second intraspinal injection she complained of feeling ill, had pain in head, back and "stomach." On November 2 blood-tinged fluid and spinal block, which persisted, were found. Intrathecal injections were made November 15 and 16, 40,000 units in 6 cc. and 50,000 units in 10 cc., respectively.

A right hemiplegia developed November 12. At operation (T. C. E.) a fairly well encapsulated abscess was found in the left occipital lobe, about 1 mm. below the surface. Thick yellow pus was evacuated, a rubber catheter was inserted into the cavity, and 2,000 units of penicillin and sulfanilamide powder were applied locally.

There was dramatic response to surgical treatment, and the patient had made an almost complete recovery by November 23, at which time she was afebrile and well oriented. However, urinary retention developed, followed by pain and weakness in the legs. By November 27 she had flaccid paralysis, incontinence and a sensory defect below the distribution of the twelfth thoracic roots. A laminectomy on November 28 (T. C. E.) from the ninth thoracic to the first lumbar vertebra, inclusive, revealed extensive adhesions in the subarachnoid and subdural spaces with a complete obliteration of subarachnoid space at the tenth thoracic level. The cord at this level was swollen and pulseless, and 4 cc. of clear yellow fluid was aspirated from its interior. Improvement beginning November 30 was steady, though slow. She was discharged from the hospital March 20 with residual of the paralysis.

CASE 2.—J. R., a child aged 22 months, had been ill two weeks before she was admitted to the Methodist Hospital[2] Nov. 19, 1945, with pneumococcic meningitis. Besides intramuscular injection of penicillin, sulfadiazine and type VI pneumococcus serum she was given 15,000 units of penicillin

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1. Material for the report of this case was provided by Dr. Milton Borman and Dr. John Garvey.

2. Dr. Margaret Prouty provided the excellent résumé of the Methodist Hospital record.

in 1.5 cc. of isotonic solution of sodium chloride intrathecally daily for three days beginning November 21. Considerable improvement occurred followed by exacerbation of symptoms November 28, at which time she was given her fourth intrathecal injection of 15,000 units of penicillin in 1.5 cc. of saline solution. On November 29 she had paralysis of extraocular muscles and decided retraction of the head; she preferred to be on her side, with legs flexed. She was alert and responsive, but movements of head were painful. It was assumed that there was a reactive arachnoiditis from penicillin irritation and continued fever from sulfadiazine or penicillin administered parathecally, and all treatment was stopped. Again there was improvement, but two days later, on December 3, a relapse occurred, at which time a spinal subarachnoid block was found. When examined after transfer to the Wisconsin General Hospital on December 3 she had a weak cry and moved her extremities on painful stimuli; her rectal temperature was 103.4 F., and her pulse rate 140. Two hours later, before any treatment had been instituted, she became less responsive, had tremor of the arms and picked at the bed clothes; her extremities assumed position of flexion and her pupils did not react to light.

Although her condition was obviously fulminating, rigorous therapy was continued, penicillin being injected intrathecally and intraventricularly. After the initiation of this treatment she went into a shocklike state with complete muscular flaccidity and small unreactive pupils. The subsequent temperature record showed an erratic course, usually subnormal and as low as 93 F. She died December 14.

At autopsy the brain weighed 1,000 Gm. and was wet, and the gyri were flattened. There were petechial hemorrhages over the entire surface of the brain, with a subarachnoid hemorrhage over the right temporal lobe. The base was covered with a fibropurulent exudate which extended into and obliterated the intercerebral sulci, and there was exudate in the cisterna magna. There was an abscess (4 by 4 cm.) in the left temporal lobe, one (1 by 2 cm.) in the right thalamus and a diffuse hemorrhage in the left thalamus. There was a serofibrinous purulent exudate extradurally on the posterior surface of the lumbar spinal cord. The cord was lusterless, with subarachnoid hemorrhage, and was covered with an opaque inflammatory membrane.

Case 3.—V. J. B., a man aged 20, was admitted to the Wisconsin General Hospital Sept. 20, 1945, with signs of a right cerebellar abscess, secondary to chronic otitis media and mastoiditis, necessitating emergency operation. The abscess, the result of a mixed bacterial infection, was deep in the anterior superior portion of the right cerebellum close to the brain stem. After evacuation of 15 cc. of pus, 8 cc. of penicillin solution containing 10,000 Oxford units per cubic centimeter was instilled into the abscessed cavity, and drainge was afforded by a soft rubber catheter. Immediately the patient showed signs of decerebrate rigidity, which later merged into generalized flaccid paralysis. Sulfadiazine (5 Gm.) was given parenterally and penicillin (10,000 Oxford units every three hours) intramuscularly daily from the time of operation until death, sixteen days later. Autopsy showed residuum of a drained right cerebellar abscess, infarction of the remaining right cerebellar hemisphere, extensive subacute meningitis and ependymitis.

Case 4.—M. F., a 6 year old girl, a patient at the Wisconsin General Hospital, became ill with signs of respiratory infection on Feb. 24, 1944. Administration of sulfathiazole resulted in improvement, but two days later signs of meningitis developed, which was confirmed by spinal puncture. February 29 sulfadiazine and type III pneumococcus serum were given, and subsequent spinal taps indicated resolving meningitis. In spite of improvement in spinal fluid findings, penicillin was given intraspinally, 10,000 units in 10 cc. every twelve hours beginning March 4, for forty-eight hours. Before the first injection the spinal fluid was opalescent, the cell count was 708 and the colloidal gold reaction was 0122221000. The day following the first intrathecal injection of penicillin her head was more retracted, and the spinal fluid was thick and green; there was no block. All penicillin therapy was stopped March 7, but retraction of the head continued to increase until the occiput

Table 1 (case 1).—*Dosage of Penicillin and Observations Concerning Spinal Fluid*

Date	Pressure, Estimated	Blood Cells: White	Blood Cells: Red	Culture	Penicillin, Intraspinal	Comment
11/ 9/45	Increased	2,430	150	Gram-positive cocci	50,000 units in 10 cc.	Organism identified as staphylococci 600 mg. protein per hundred cubic centimeters
11/10/45	.....	2,280	1,240	Positive	50,000 units in 10 cc.	Complained of pain in head, back, stomach soon after intraspinal injection
11/12/45	Queckenstedt's test: no rise	12	Many	.....	.....	No bacteria on smear
11/14/45	Queckenstedt's test: no rise	1,180	200	.....	.....	
11/15/45	Decreased	750	550	0	40,000 units in 6 cc.	Xanthrochromic
11/16/45	.....	.....	.....	.....	50,000 units in 10 cc.	Xanthrochromic
11/28/45	.....	250	10,000	0	.....	"Bloody" spinal fluid

Table 2 (case 2).—*Observations Concerning the Spinal and the Ventricular Fluid, with Doses of Penicillin Administered*

Date	Spinal Fluid: Pressure	Cells	Sugar	Protein	Culture	Penicillin	Ventricular Fluid: Pressure	Cells	Sugar	Protein	Culture	Penicillin
12/ 5/45	190	709	..	409	Pneumococcus VI	1,500 U. (10 cc.)	130	87	..	125	Pneumococcus VI	25,000 U. in 100 cc.*
12/ 6/45	110	45,150	15	309	.....	2,500 U. (10 cc.) 2,750 U. (15 cc.)	90	1,365	57	199	0	12,500 U. in 50 cc.†
12/ 7/45	85	2,825	..	210	0	2,750 U. (15 cc.)	...	.....	..	...	..	12,500 U. in 50 cc.‡
12/ 8/45	200	83,000	33	...	0	5,000 U. (20 cc.)	...	678	..	...	0	12,500 U. in 50 cc.†
12/ 9/45	...	6,020	..	...	0	2,750 U. (15 cc.)	...	329	..	...	0	15,000 U. in 60 cc.†
12/10/45	...	6,684	35	...	0	.....	150	10,896	42	...	0	12,500 U. in 50 cc.†
12/11/45	190	4,880	50	200	0	2,500 U. (10 cc.)	250	3,440	45	50	0	5,000 U. in 20 cc.†
12/12/45	240	.....	..	...	..	2,750 U. (15 cc.)	110	.....	..	...	..	12,500 U. in 50 cc.†
12/13/45	270	.....	..	...	..	5,000 U. (20 cc.)	80	.....	..	...	..	6,250 U. in 25 cc.†

* The penicillin was administered in Hartmann's (lactate-Ringer) solution.
† The penicillin was administered in Ringer's solution (isotonic solution of three chlorides).
‡ The penicillin was administered in Ringer's solution; 150,000 units of rabbit serum, pneumococcus VI, was also administered.

was almost touching the back, resulting in mechanical difficulty in swallowing. The legs were flexed, she was alert, percussion of her head was not painful, but movement of head or legs was extremely so. She was up and about on March 25, with retraction still present. By the time of discharge on April 9 the retraction had finally been overcome, and recovery was eventually complete.

COMMENT

Siegal [3] (1945) reported an instance of transverse myelopathy following recovery from meningitis, which has direct bearing on case 1 of the present report. His patient, a woman with pneumococcic meningitis, was given 10,000 units of penicillin intrathecally on the day of admission to the hospital, in addition to penicillin and sulfadiazine administered parenterally. Her condition became worse after two subsequent daily intraspinal injections of 40,000 units (1,000 units per cubic centimeter in each instance). Intraspinal therapy was continued during the second week, the intraspinal dose being reduced to 20,000 units daily. On the seventeenth day she had a complete flaccid paraplegia with retention of urine and a sensory level at the tenth thoracic dermatome. There was no evidence of block and the fluid was sterile. She recovered, but serious paralytic residuals persisted. Siegal concluded that this complication may be regarded as a natural, although rare, complication of the disease or that it may be due to intensive intraspinal penicillin therapy.

Percival Bailey [4] (1945) has reported a case of a 15 year old boy who had been ill with meningitis for a week before he received two intraspinal injections of 50,000 units of penicillin in one day. This was followed in three days by convulsions and weakness of his legs. By the twelfth day after the intrathecal administration of penicillin he had flaccid paralysis with sensory level at the tenth thoracic dermatome and spinal block. A laminectomy the twenty-sixth day after intraspinal therapy at the seventh, eighth and ninth thoracic dermatomes revealed the subarachnoid space to be completely obliterated and the spinal veins thrombosed. A biopsy of the leptomeninx showed dense scar of collagenic tissue in which inflammatory cells were entirely absent. Dr. Bailey in his comment apparently did not consider this an adverse effect of intraspinal administration of penicillin, but concluded that this represented the end stage of an inflammatory exudate which predominated in the spinal region.

Sweet and his collaborators [5] in an earlier report analyzed the mortality and morbidity of 16 cases of pneumococcic meningitis in which sulfonamide compounds and penicillin were administered parenterally and intrathecally. In this series there were 9 deaths and 7 recoveries. Among the recovered patients there were 4 instances of reactions ascribed to intrathecal action of penicillin. In each instance the lesion involved the lower segments of the spinal cord or the roots of the lumbosacral plexus, and symptoms developed between the tenth and the fourteenth day after initiation of intraspinal therapy.

Since the original report 31 additional patients with pneumococcic meningitis have been treated by Sweet [6] with careful attention to the concentration and size of dose by the intrathecal route. Of this group 16 have recovered. There has been only one complication: a patient was inadvertently given 200,000 instead of 20,000 units. In the course of a week progressive irritation with increased spinal fluid protein and eventually a subarachnoid block, developed. He recovered with some residual effects.

In another patient of Sweet's series [5] an attempt was made to secure better diffusion of the penicillin by alternately injecting it into the cisterna magna and the lumbar subarachnoid space. The cerebrospinal fluid became bloody after twelve days; the patient went into coma, and died on the nineteenth hospital day. The autopsy showed a blood clot in the cisterna magna and meningeal adhesions just below the cisterna magna. This seems of particular significance in relation to case 3, in which it appeared that the concentrated penicillin had leaked out of the cerebellar abscess cavity. The autopsy revealed an area of hemorrhagic infarction at the site of the injection of penicillin, similar to the changes observed by Russell and Beck [7] (1945) in experiments with injection of concentrated penicillin solution into the cerebral cortex of rabbits.

Although one cannot prove that the meningitis did not contribute in part to the various complications observed, the evidence is strong that the major factor in each instance was the intrathecal injection of the penicillin. In reviewing our own cases of myelopathy and those previously reported, one is impressed with several features that they have in common, notably the onset ten to seventeen days (usually ten to fourteen days) after initial intrathecal administration of penicillin and the localization of the pathologic process to the lower cord and cauda equina (the tenth thoracic dermatome was the usual level clinically). Additionally, in several instances the patient had recovered from meningitis or seemed to be on the road to recovery, usually with sterile spinal fluid, often with evidence of spinal block. Another frequently noted observation in the progress of these intraspinally treated patients has been frequent relapses, which suggests that the penicillin has sterilized the subarachnoid space but has also increased the formation of exudate, resulting in encysted infection to which penicillin does not gain access by way of either the blood stream or the spinal fluid. From the references in the literature [8] to subarachnoid block without mention of neurologic complications, one may infer that the process frequently stops short of irreversible damage.

One must note, however, that the meningeal or nervous tissue reactions to penicillin may not be strictly localized to the vicinity of the injection in the spinal canal. In case 4 there was apparently a much more widespread irritation. Similarly, there is the case reported by Forrest [9] (1945), in which paralysis developed in the upper extremity, as well as the other types of complications listed by Sweet [10] and by Walker and Johnson.[11]

3. Siegal, S.: Transverse Myelopathy Following Recovery from Pneumococcic Meningitis, J. A. M. A. **129:** 547 (Oct. 20) 1945.
4. Bailey, P.: Chronic Leptomeningeal Thickening Following Treatment of Meningitis with Sulfa-Drugs, Ann. Surg. **122:** 917 (Dec.) 1945.
5. Sweet, L. K., and others: The Treatment of Pneumococcic Meningitis with Penicillin, J. A. M. A. **127:** 263 (Feb. 3) 1945.
6. Sweet, L. K.: Personal communication to the authors, May 20, 1946.
7. Russell, D. S., and Beck, D. J. K.: Local Action of Penicillin and Sulfamezathine, and Penicillin-Sulfamezathine Mixture on Rabbit Brain, Lancet **1:** 497 (April 21) 1945.
8. Appelbaum, E., and Nelson, J.: Penicillin in the Treatment of Pneumococcic Meningitis, J. A. M. A. **128:** 778 (July 14) 1945.
9. Forrest, A. R.: Neurological Complications in Cerebrospinal Meningitis Treated with Penicillin, Brit. M. J. **2:** 805 (Dec. 8) 1945.
10. Sweet and others.[5] Sweet.[6]
11. Walker, A. E., and Johnson, H. C.: Principles and Practice of Penicillin Therapy in Disease of the Nervous System, Ann. Surg. **122:** 1125 (Dec.) 1945.

An observation not encountered in reviewing the literature on the intrathecal administration of penicillin was the finding of an intramedullary cavity in association with the adhesive arachnoiditis in case 1. Intramedullary cavitation secondary to spinal adhesive arachnoiditis of other origin has been noted by several authors. A recent paper by Lubin [12] (1940) suggests that it is due to decreased blood supply and consequent necrosis of the central portion of the cord. It is significant that Bailey noted a thrombosis of the vessels of the spinal cord as well as arachnoiditis.

The reaction of the meninges limited to the neighborhood of the site of the intrathecal injection of penicillin suggests that concentration of the penicillin solution in the cerebrospinal fluid is the most important factor in producing this complication. Analysis of the material suggests that the reactions are more likely to occur with relatively concentrated solutions (5,000 to 50,000 units per cubic centimeter) than with dilutions of 1,000 units per cubic centimeter or less, as recommended by the Committee of the National Research Council. In case 4 radiculitis developed in the 6 year old patient following the use of 10,000 units in a volume of 10 cc., which, however, was repeated every twelve hours for forty-eight hours. In the patient reported by Siegal [3] (1946), transverse myelopathy followed the use of a solution of 1,000 units per cubic centimeter, with a daily dosage as high as 40,000 units. It is obvious that the final concentration obtained in the cerebrospinal fluid is dependent not only on the concentration of the penicillin solution but on the total dosage. That these reactions depend on the concentration of penicillin in contact with the pia-arachnoid is indicated not only by the clinical cases but by the experimental findings of Russell and Beck [7] (1945) and the work of Walker and others.[13]

SUMMARY AND CONCLUSIONS

In 4 cases complications occurred following intrathecal administration of penicillin. In 3 of these cases the penicillin had been injected intraspinally. From these cases and those previously reported it appears that the most frequent and characteristic reaction occurs in the meninges leading to adhesive spinal arachnoiditis and in the more severe cases leading to transverse myelopathy. In 1 case recovery from such a cord lesion followed decompressive laminectomy and aspiration of an intramedullary cyst. In another case, signs of damage of the brain stem occurred following the injection of penicillin into the cavity of a cerebellar abscess from which the penicillin leaked into the basal cisternae.

The important factors in the production of toxic complications are (1) concentration of penicillin solution, (2) slow diffusion of spinal fluid, (3) size of individual doses, (4) frequency of injection and (5) duration of intraspinal therapy.

The occurrence of these complications may be minimized by using a dilute solution of penicillin, by avoiding the use of a large total dosage and by limiting the number of injections to a minimum. Further, in consideration of the altered hematoencephalic barrier in disease, it is suggested that greater reliance be placed on early treatment with maximum doses of parenterally injected penicillin, and that when possible intraspinal administration be avoided.

12. Lubin, A. J.: Adhesive Spinal Arachnoiditis as a Cause of Intramedullary Cavitation, Arch. Neurol. & Psychiat. **44:** 409 (Aug.) 1940.

13. Walker, A. E., and Johnson, H. C.: A Convulsive Factor in Commercial Penicillin, Arch. Surg. **50:** 69 (Jan.) 1945; A Note of Warning, J. A. M. A. **127:** 217 (Jan. 27) 1945. Walker, A. E.; Johnson, H. C., and Kolfros, J. J.: Penicillin Convulsions, Surg., Gynec. & Obst. **81:** 692 (Dec.) 1945. Walker and Johnson.[11]

ABSTRACT OF DISCUSSION

Dr. Irving J. Sands, Brooklyn: The authors call attention to a rather hazardous situation arising from intrathecal administration of penicillin. The use of intrathecal administration of serum began with antimeningococcus serum and later with tetanus antitoxin. With the introduction of arsphenamine thirty years ago we began to administer the drug intrathecally according to the methods of Swift, Ellis and Ogilvie. However, Dr. Bernard Sachs and his co-workers, in a paper entitled "On the Intravenous and Not the Intraspinous Administration of Arsphenamine in Neurosyphilis," called our attention to the neuropathies resulting from the use of the drug intraspinously. Our entire intraspinous therapy is based on the theory of the blood brain barrier which exists in health but which needs modification as far as disease is concerned. With the introduction of the sulfonamide drugs, antimeningococcus serum has no longer been used intraspinously. However, the introduction of penicillin has again made intraspinous therapy a method of recognized procedure. My impression gained from clinical observation is that there is no need for intrathecal administration of penicillin in meningitis. Meningococcic meningitis lends itself readily to sulfonamide therapy. The trouble that one will encounter is with pneumococcic meningitis, and in that particular type the early administration of intravenous penicillin in conjunction with sulfadiazine will cure most of the patients. Occasionally the organism will persist in the spinal fluid despite the clinical improvement of the patient. Then one may have to use intrathecal administration of penicillin. In doing so, however, one must prepare the patient properly, first by administering a hypertonic glucose solution intravenously, secondly by withdrawing two or three times the amount of spinal fluid in proportion to the solution of penicillin one wishes to inject and thirdly by diluting the solution of penicillin, giving only 20,000 units in twenty-four hours. The use of penicillin intrathecally is necessary only on rare occasions.

Dr. Benjamin Boshes, Chicago: This paper is a most important contribution to our utilization of this antibiotic agent. However, I believe that too much emphasis is placed on the negative phases of penicillin therapy. If one uses penicillin as it is suggested it be used, rather than using it in unusually large doses, many of the complications can be avoided. My experience has been exclusively with men of the Army, and perhaps a sample of army material as against civilian material is poor because the average soldier is healthy and almost hard to kill. Secondly, in the Army great emphasis is placed on the early diagnosis of meningitis, with the result that it is rarely that we see a soldier in a true meningitic state. The diagnosis is usually made in the septicemic state. Rosenberg and his group at the Great Lakes Naval Training Station reported 72 cases of meningitis of all types—meningococcic, pneumococcic and others—with cell counts up to 50,000. In his series, treating them by the intrathecal method exclusively, he had 100 per cent recovery and not a single important complication. I have spoken to Dr. Rosenberg about this group because it seemed almost fantastic, and he assures me that in following his cases there were no recurrences nor complications, except on occasional transient palsy. In our group we had exactly the same results. We saw none of the complications that have been described here. I am attributing these results to one factor only: we gave penicillin exactly as it had been suggested in our official directives. Overseas we did not have access to much literature, but our army directives in this case at least were very useful. We never gave more than 10,000 units at a time intrathecally. It was rarely that we had to repeat the administration during the day, and only in exceptional cases did we have to give more than four intrathecal injections of penicillin

in all. Penicillin given as 10,000 units intrathecally, not repeated oftener than necessary, has in the hands of many been a drug without complications.

DR. A. EARL WALKER, Chicago: There are three main types of complications to penicillin administered directly to the central nervous system. First, the changes occurring in the arachnoid, second, the alterations in the nerve fibers, inducing a radiculitis, and, third, the cerebral reactions, taking the form of convulsions. We have found all three types to occur when penicillin has been given in large doses but practically never when the dose of penicillin has been quite small. Whether the concentration is the predominant factor is hard to determine. Certainly the total amount of penicillin seems to be more important than the actual concentration. Adequate treatment of meningitis with penicillin will depend on the amount of penicillin which actually reaches the various parts of the subarachnoid space. Experimentally in animals and in man, lumbar penicillin does not reach the subarachnoid space over the brain in very high concentrations. As a matter of fact, in some instances we have not found any penicillin in cisternal fluid after the injection of as much as 30,000 units in the lumbar region. Examinations were made of the cisternal fluid for a period of six hours after the injection. The peak is usually reached within four hours. When the injection was made in the cisternal region the distribution of the penicillin is much better. The concentration in the ventricles and in the subarachnoid space over the brain is considerably higher. Even with infections of the meninges, parenteral administration of penicillin in large doses in many instances will not produce an antibiotic concentration in the spinal fluid. It is true that for the more sensitive organisms such as the majority of the meningococci, antibiotic concentrations can be reached by parenteral administration of penicillin, but for the more resistant organisms such concentrations are not reached, and it is necessary to give penicillin intrathecally. I think Dr. Masten has pointed out that the amount of penicillin should be kept as low as possible, for certainly, even if the penicillin is given in small amounts, antibiotic concentrations may be maintained for twenty-four hours. Ten to twenty thousand units seems to be as much as the brain will tolerate in most cases.

DR. MABEL G. MASTEN, Madison, Wis: I thank the discussers, with whom I am in complete agreement. I must emphasize, of course, that in regard to civilian practice we do not have the opportunity of seeing the patients as early as the military did. I have no doubt that many of Rosenberg's cases would have responded very favorably to the parenteral methods of penicillin therapy. I must admit that I have held even more nihilistic views toward intrathecal therapies, and although neither the proponents of intraspinal treatment nor I have irrefutable proof to support our views, it seems better wisdom on my part to make a compromise as has been stated in our conclusions for the purpose of achieving at least a thoughtful conservative attitude toward intrathecal injection of any agent.

Radioactive Isotopes of Iron.—The original studies of Hahn and his colleagues in animals and of Ross and Chapin in humans employed a mixture of radioactive isotopes of iron, prepared by bombardment in the cyclotron of iron phosphide. Subsequently Evans and his co-workers at the Radioactivity Center of the Massachusetts Institute of Technology developed methods for preparing two separate isotopes by bombardment of manganese and cobalt respectively. The half-life of one of these isotopes is five years; that of the other, forty-seven days. The fact that the first has its principal radiation in the form of x-rays and the second in the form of beta rays (energetic electrons) has been utilized in constructing a Geiger counting chamber with windows specifically sensitive to the radiation of each isotope. With each isotope there have been developed three products safe for human injection: (1) radioactive iron in the form of ferric ammonium citrate, (2) radioactive hemoglobin derived from the cells of patients who have received radioactive iron and (3) their red cells containing radioactive hemoglobin. —Armstrong, S. Howard, Jr.: The management of Blood Preservation and Blood Substitutes, *Bulletin of the New York Academy of Medicine*, September 1946.

THE RELATIONSHIP OF PHYSICAL MEDICINE TO GENERAL PRACTICE

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The gratifying and phenomenal progress which physical medicine has made during recent years has not been limited to an increased interest in and better understanding of this form of therapeutics. It has involved a gradual development of a much broader conception of the entire subject. This changed attitude is evidenced in the adoption of the term Physical Medicine as the appropriate designation for this field of practice, thus indicating that it is no longer restricted to treatment, since many of the procedures employed are of definite diagnostic value, particularly in the study of neuromuscular mechanisms. The term physical medicine now also includes occupational therapy, an indispensable adjunct to physical therapy. All of these activities are regarded as essential to any successful, well coordinated program of medical reconditioning. The present concept, therefore, of physical medicine, as illustrated by chart 1, includes several closely associated

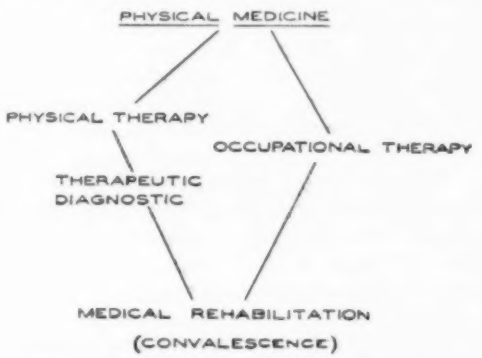

Chart 1.—The present concept of physical medicine.

activities that in the aggregate comprise a special field of clinical medicine of fundamental importance and proved value.

In spite of the increased recognition and support which physical medicine has received from certain sources, it is a curious phenomenon that the great majority of physicians in this country have failed to show enthusiasm for or to take much interest in this branch of medicine. The reasons for this attitude have been pointed out on other occasions.[1] Suffice it to emphasize that lack of education in this subject during and after completion of the medical course is primarily responsible for this state of affairs. It is encouraging to observe that increasing efforts are being made to correct this deficiency in the medical curriculums.

There has never been a time when such exceptionally good opportunities in physical medicine have been available to the general practitioner as there are at present. The public, long aware of the value of physical forms of treatment and now acutely interested in the worldwide problem of reconditioning, is looking

From the Center for Instruction and Research in Physical Medicine, University of Pennsylvania.

Read in the General Scientific Meetings at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 2, 1946.

1. Piersol, G. M.: Value of Physical Medicine in Internal Medicine, J. A. M. A. **117**: 1835-1839 (Nov. 29) 1941; Physical Therapy in Certain Medical Conditions, Arch. Phys. Therapy **24**: 5-13 (Jan.) 1943; Physical Medicine Comes into Its Own in Pennsylvania, Gen. Mag. & Hist. Chron. **46**: 195, 1944.

toward the medical profession for leadership in this field. Thousands of the veterans returning to various communities are suffering from, and many will continue for years to suffer from, injuries and disabilities which require for their proper management physical and occupational therapy. Although a large number of those with and without service-connected disabilities will be under the supervision of the Veterans Administration, it is certain that if proposed programs are worked out, in many instances those returning from the armed forces may be cared for by physicians of their own choosing and in their community hospitals. Those veterans who during their service experience have learned the value of physical therapy will be justified in insisting on a continuation of such treatment from their family physicians. If their own physicians, on whom they depend, are unwilling or unable to furnish such expected treatment, there should be neither surprise nor dissatisfaction on the part of physicians if the veterans seek physical therapy elsewhere. Indeed, in far too many instances this is already taking place.

It is a mistake to think that problems of reeducation or reconditioning are limited to disabilities incurred as the result of war. In a great nation such as this, in which the bulk of the population comprises workers engaged in all forms of activity, the annual toll of industrial accidents far exceeds the number of the battle casualties of any war. When to this figure is added the appalling number of traffic accidents and the indeterminate number of nonindustrial accidents that occur in the home or elsewhere, the toll of civilian injuries that sooner or later require some form of reeducation reaches a staggering total. In 1940 industrial injuries alone were listed at 1,890,000. The loss of time as a result of these injuries, if deaths and permanent disabilities are included, is estimated at 233,840,000 working days, the equivalent of the full time work of 780,000 workers.[2] It has been stated that in any one year more amputations are performed as the result of industrial and civilian accidents than were carried out on the personnel of the armed forces during the entire World War II.

Regardless of any specialists involved in the management of patients in the previously enumerated groups, it is obvious that at some time during the period of their treatment and reeducation most of them will become the responsibility of their family physicians. Since in the course of their disability a large percentage will require some form of physical medicine, the general practitioner, in order to safeguard the best interests of his patients, should be in a position to prescribe or at least properly supervise whatever treatment of this type is indicated.

The reluctance of physicians to employ physical forms of treatment is in no small degree based on widespread misconceptions of what is involved in this type of therapy. It is believed that effective physical therapy requires the use of complicated and expensive apparatus. As will be emphasized later, the experience of a department of physical medicine in a general hospital shows that the contrary is true. Massage, the application of various forms of heat, therapeutic exercises, manipulation and hydrotherapy form the bulk of the treatments given. These are comparatively simple procedures which require, for the most part, no elaborate equipment and are readily adaptable for use in both office and home. However, their successful employment is dependent on: (1) a correct diagnosis; (2) an accurate anatomic knowledge of the part involved; (3) familiarity with the technics offered by physical medicine; (4) thorough understanding of the physiologic reactions which these procedures bring about in the body as a whole as well as locally, and (5) the technical skill and manual dexterity essential to the proper administration of the indicated treatments.

The physician who intends to employ physical therapy should be mindful of the statement made by Mock[3] some years ago, that 90 per cent of physical medicine in general hospitals consists of common sense and intelligent hand work. Since the most useful procedures are relatively simple and fundamental, their employment offers no insuperable difficulties to any physician who is willing to become acquainted with the indications and contraindications for their use. This can be accomplished by the study of any one of the excellent texts that are available. The practitioner will find the Handbook of Physical Medicine prepared under the supervision of the Council on Physical Medicine of the American Medical Association helpful and profitable reading.

As is the case with all therapeutic agents that bring about definite physiologic reactions, the procedures employed in physical medicine are capable of doing harm as well as good. Not only is it essential to select the proper procedure or combination of procedures, but their dosage must be regulated in regard to intensity, duration and frequency. Disappointing and at times harmful results have frequently been recorded because of lack of attention to or ignorance of these details.

The physician who intends to employ physical therapy must, therefore, know what to expect from different forms of treatment in order to intelligently prescribe the type of therapy desired. It frequently becomes necessary to do this in order to serve the best interests of patients. Although for the most part procedures in physical medicine may be carried out anywhere, there are many technics that require cumbersome special equipment and there are certain conditions the treatment of which calls for the employment of highly trained personnel who, as a rule, are seldom available except in well organized departments of physical medicine. Among the forms of treatment that are usually available only in hospitals or offices equipped for physical therapy may be mentioned underwater exercises requiring a therapeutic pool or Hubbard tank, whirlpool baths, the more elaborate forms of hydrotherapy, phototherapy, electrotherapy, mechanotherapy that employs stall bars, rings and extension devices, alternate suction pressure, venous occlusion, fever therapy and electric shock therapy, as well as other treatments that require respirators and a variety of other special therapeutic apparatus.

The prescription for physical therapy should furnish certain data that are essential to the intelligent management of the patient. A definite diagnosis should be given. It is not enough to merely mention a symptom. For example, low back pain is not a diagnosis; it may be the result of a score of conditions, many of which call for different types of physical therapy. The part to be treated should be clearly specified, and it should be stated whether the desired effect is to be general or local. There should be some mention of why the treatment is

2. Report of The Baruch Committee on Physical Medicine, New York, April 1944, p. 59.

3. Mock, H. E., cited in Handbook of Physical Medicine, Chicago, American Medical Association, 1945, p. 351.

ordered and what it is intended to accomplish. The exact details of the treatment ordered should be specified, otherwise, they must be left to the judgment of the physical therapeutist. Moreover, any associated abnormality of the patient which tends to reduce his tolerance to, or modify the effect of, physical forms of therapy should be pointed out; for example, diabetes, chronic nephritis, cardiovascular disease, abnormalities of the nervous system (both organic and functional), idiosyncrasies and psychologic peculiarities. If an operation has been performed, there should be some indication as to what was done, when it was performed, what result was obtained and what precautions are indicated because of it. One form of treatment should not be persisted in indefinitely. The type of therapy should be varied according to the patient's condition. As Wright [4] points out, transitions in treatment should keep pace with changes in the pathologic processes. It is the exception rather than the rule to find that patients who are referred for physical therapy are accompanied by a helpful and informative prescription which gives the information just outlined. As a rule, requests for physical therapy are brief, ambiguous and indefinite, and leave much to the discretion and judgment of the physical therapeutist. A survey of the prescriptions coming to a department of physical medicine leads one to believe that, from the point of view of most physicians, heat and massage are synonymous with all forms of physical therapy. What has been said in reference to the proper procedure in prescribing physical therapy is equally applicable to the closely allied field, occupational therapy. These types of therapy should no longer be regarded as separate entities but rather as closely coordinated activities which supplement each other and can with advantage be prescribed together.

From a survey of the prescriptions which referring physicians send to a department of physical medicine, it is evident that there is a striking lack of uniformity on their part in regard to the type of treatment desired. From such a study one is forced to conclude that there is either a wide diversity of opinion as to the proper management of many conditions or that referring physicians are unaware of the possibilities offered by a department of physical medicine and unfamiliar with the physiologic effects that may be expected of various types of physical therapy. This point is well illustrated by the following examples. In a series of 235 cases of chronic arthritis referred to a department of physical medicine, no less than 16 separate and distinct forms of treatment were suggested at the time of referral. In a group of 120 various types of extremity fractures, 11 separate procedures were advocated. In 34 cases of so-called subacromial bursitis 10 types of treatment were recommended and in 214 cases of muscular pain of undetermined origin, 15 different procedures were recommended. Thus, it is apparent that in the minds of many physicians there still exists considerable confusion over what constitutes effective physical therapy.

One of the most important functions of a department of physical medicine is to take care of patients whose treatment cannot be successfully managed without the help of special apparatus and the services of a carefully trained technical staff. There are many types of patients in this category who should be so referred by the general practitioner, if the best interests of these patients are to be served and they are to be afforded the type of treatment calculated to restore their self reliance and help them to return to a productive existence. Notable in this group may be mentioned severe and complicated fractures; certain instances of injuries to the peripheral nerves and tendons that require prolonged aftercare and exact muscle reeducation; injuries to the spinal cord resulting in paraplegia, of which so many examples are to be found among the returning veterans; cerebral palsy, and the more severe types of infantile paralysis with disabling residua. In these last three groups especially, reeducation often requires not only weeks but even years of continuous supervised treatment which can be adequately given only by those trained for the purpose.

There is one aspect of the treatment of every patient who requires reconditioning and convalescent care, regardless of how the disability was acquired, which must ever be kept in mind. Psychotherapy, although not strictly speaking a subdivision of physical medicine, plays as important a role in this type of treatment as it does in all other therapeutic procedures. Although an essential and integral part of all aspects of the practice of medicine, the proper psychologic approach is important to those who suffer from disabling and disfiguring disabilities and who have to learn to live with and use various artificial devices. In the management of every patient requiring reconditioning, proper psychologic treatment rests on coordinated effort and thorough understanding between the family, nurses, physical therapeutists and all physicians concerned in their care, especially the general practitioner. In every case of disability, regardless of when or how acquired, the patient sooner or later comes to depend chiefly on the family physician for help, guidance and encouragement. The physician's mental attitude is definitely reflected in the psychology of the patient. If he advises physical therapy with any doubt or skepticism, the effectiveness of the treatment is delayed and impaired because of the lack of enthusiasm and unwillingness to cooperate shown by the patient. On the other hand, reassurance and conviction on the part of the physician that the treatment is indicated and will be successful does much to enhance its value. The importance of inspiring patients with confidence should be borne in mind by every practitioner whenever his patients are referred for physical therapy. It not infrequently happens that physicians refer a patient for physical forms of treatment not because they believe in the inherent value of the treatment but because they are impelled to do something new for a troublesome patient whose progress is unsatisfactory. If, unfortunately, the patient gets an inkling of such a mental attitude on the part of the physician, those who are entrusted with the application of physical therapy are at the start handicapped by the necessity of overcoming a serious psychic barrier.

Those seeking information in regard to what physical medicine offers as a means of treatment often ask what type of patient and what kind of disorders are suitable for physical therapy, what are the most useful technics and what results may be expected? In order to find an answer to these questions, based not on general impressions but on factual data, my associate, Dr. Steven M. Horvath, assisted by Miss Mary C. Wenck, has just completed an analysis of the material that passed through the Department of Physical Medicine of the Hospital of the University of Pennsylvania

4. Wright, J.: The Physical Therapy Prescription, Physiotherapy Rev. **25**: 22-27 (Jan.-Feb.) 1945.

between the first of June 1945 and the first of June 1946. Since this institution is a general hospital, which handles all types of patients both medical and surgical, inpatient and outpatient, representing almost every stratum of society, it is reasonable to suppose that the material derived from such a source approximates closely the type and distribution of patients that make up the general practice of the average physician in a large city. This would not be the case if the material studied came from a special hospital, that is, one dealing largely with military or industrial casualties or one devoted to children, orthopedic or neuropsychiatric patients. The total number of patients seen in the department during the past year was 1,239; 1,083 cases were new, representing approximately 90 new patients per month. One hundred and fifty-six cases were old

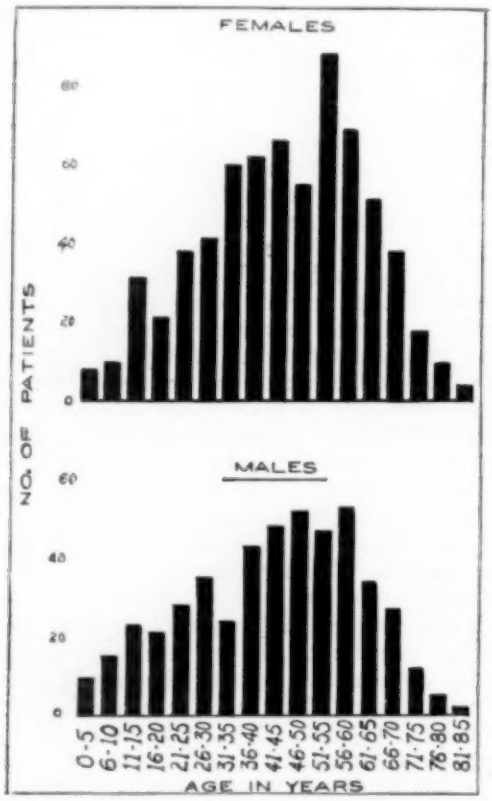

Chart 2.—Distribution by age and sex of the patients referred to the Department of Physical Medicine by all sources for one year, June 1, 1945 to June 1, 1946.

and carried over from the preceding year. The patients were about equally divided between those referred from the outpatient clinics and those sent to the department from the semiprivate and private rooms and referred by outside physicians.

The distribution by age and sex is shown on table 1 and on chart 2. There were 50 per cent more women treated than men. That physical therapy may be a useful adjunct to the treatment of patients of all ages is indicated by the fact that the age incidence ranged from 2 to 85 years. The small number of children handled is largely due to the fact that the bulk of the pediatric service at the University of Pennsylvania is carried on in a separate hospital for children. The experience of any general practitioner would undoubtedly include a greater number of young people. The number of patients in the seventh and eighth decades of life suggests that physical therapy in properly selected cases is not contraindicated in the older age groups. By far the greatest number of patients were between 40 and 65 years of age. This is the period during which the degenerative diseases such as arthritis and allied rheu-

Table 1.—*Age Distribution of Patients Treated in the Department of Physical Medicine, June 1945 to June 1946*

Age in Years	Men	Women	Totals *
0- 5	9	8	17
6-10	15	10	25
11-15	23	31	54
16-20	21	21	42
21-25	28	38	66
26-30	35	41	76
31-35	24	60	84
36-40	43	62	105
41-45	48	66	114
46-50	52	55	107
51-55	47	88	135
56-60	52	60	122
61-65	34	51	85
66-70	27	38	65
71-75	12	18	30
76-80	5	10	15
81-85	2	4	6
Totals	478	670	1,148

* The age of 70 women and 21 men was unknown. A total of 1,239 patients were treated, 156 being carried over from the previous year.

matoid conditions, vascular disease, diabetes, chronic nephritis and diseases of the nervous system are most prevalent. Personal experience would lead one to believe that patients in this age group who are suffering from degenerative conditions constitute the bulk of the practice of the internist and the general practitioner.

Based on the referral diagnosis, it will be seen that 57 per cent of the conditions most often treated were represented by chronic arthritis, neuromuscular pains of undiagnosed origin, strains and fractures. The frequency of the twelve diagnoses most commonly submitted is shown in table 2. The frequency of chronic arthritis in women as compared with this incidence in men is one reason why the percentage of women was

Table 2.—*Twelve Most Commonly Submitted Diagnoses in Patients Referred for Treatment to the Department of Physical Medicine, June 1, 1945 to June 1, 1946*

Diagnosis	Number of Patients	Per Cent of All Patients *	Number of Methods of Treatment Given
Arthritis	235	19.0	16
Pain (undetermined origin)	214	17.3	15
Strains	133	10.8	12
Fractures	120	9.7	11
Bursitis	34	2.7	10
Hemiplegia or paraplegia	30	2.4	10
Postoperative	28	2.3	11
Scoliosis	22	1.8	8
Neuritis	22	1.8	9
Myositis	20	1.6	8
Bell's palsy	18	1.5	8
Posture difficulties	18	1.5	4

* There were 1,239 patients.

greater than that of men in the total patient load. On the other hand, as might be expected, disabilities due to trauma were more commonly found in men than in women. The great variety of conditions that were regarded as suitable for physical therapy is indicated by the 111 separate diagnoses submitted with 1,239 patients, counting all types of arthritis, fractures, back pain and strains as a single unit only.

Table 3, which shows the type and frequency of treatment given to patients with various diseases, leads to some interesting conclusions. A total of 23,345 treatments were given, representing 28 different types of procedure. As pointed out earlier, such simple forms of treatment as exercise, massage, baking and heat from infra-red lamps were overwhelmingly preponderant and represented 71.7 per cent of all the treatments given. This again emphasizes the observation that the majority of the conditions in which physical forms of treatment are useful adjuncts respond satisfactorily to those procedures which are most readily available to the general practitioner and require a minimum amount of elaborate apparatus. The large number of treatments over long periods that were required by many patients confirms the well recognized fact that in order to obtain good results physical forms of therapy must be used systematically over a considerable period, except in certain acute conditions, many of which often undergo spontaneous improvement rather promptly. It is unwise to lead patients to believe that cures can be effected by a few treatments or by occasional treatments given at long intervals. This is particularly true of the most frequently employed type of physical therapy, massage, whose effectiveness, as Pemberton [5] and others have pointed out, depends largely on its prolonged and systematic use.

TABLE 3.—*Analysis of the Treatments Given to Patients by a Department of Physical Medicine During a Twelve Month Period*

Type of Treatment	No. of Treatments	% of Total Treatments	% of Patients* Receiving Treatment	Treatments Given to Patient		No. of Patients Treated
				Mean	Range	
Massage	7,966	34.0	72.7	8.8	1 - 82	901
Baking	5,292	23.7	54.6	7.8	1 - 70	676
Exercise	1,815	7.8	16.8	8.7	1 - 85	208
Infra-red	1,439	6.2	15.3	7.6	1 - 75	189
Short wave diathermy	1,206	5.4	14.6	7.0	1 - 43	181
Hubbard tank	1,243	5.3	5.6	17.7	1 -110	70
Exercise—passive	1,231	5.3	8.3	12.0	1 - 65	103
Suction and pressure	577	2.5	3.6	12.8	1 - 39	45
Whirlpool bath	411	1.8	4.5	7.3	1 - 37	56
Exercises—under water	372	1.6	1.2	24.8	1 -120	15
Ultraviolet radiation	329	1.4	2.0	13.2	2 - 35	25
Galvanic stimulation	313	1.3	2.0	12.5	1 - 57	25
Sinusal stimulation	289	1.2	1.6	13.4	1 - 71	20
Muscle reeducation	165	0.7	1.2	11.0	1 - 83	15
Long wave diathermy	134	0.6	1.4	7.9	1 - 32	17
Heat—dry	121	0.5	0.3	30.2	3 - 32	4
Scotch douche	110	0.4	1.5	5.8	1 - 24	19
Packs—hot	106	0.5	0.2	53.0	0 - 83	2
Faradic stimulation	95	0.4	0.9	8.6	1 - 18	11
Luminous lamp	65	0.3	1.0	5.4	1 - 22	12
Iontophoresis	27	0.1	0.5	4.5	1 - 9	6
Inductance coil stimulation	21	0.1	0.2	10.5	3 - 18	2
Alcohol sponge bath	19	0.1	0.1	19.0	0 - 19	1
Contrast bath	13	0.1	0.2	4.3	1 - 8	3
Irrigation, high colonic	3	0.0	0.1	3.0	0 - 3	1
Fever therapy	3	0.0	0.1	3.0	0 - 3	1

* 1,239 patients received a total of 23,345 treatments.

The evaluation of any type of treatment is admittedly difficult and subject to error, especially when it is based on clinical impressions and the subjective statements of patients rather than on controlled objective observation. This is especially true of patients referred for physical therapy, the majority of whom, as in the present instance, were suffering from chronic diseases, in which the exact cause is not too well understood and the symptoms may spontaneously undergo long periods of remission. Furthermore, most patients while under observation received other forms of treatment along with physical therapy. In the evaluation of any special form of treatment one must reckon with the ever present and highly variable psychologic factor. With so many sources of error due to uncontrolled variables, no conclusions as to the comparative value of various forms of treatment are justified. Even impressions based on clinical observation are of little actual value unless they are checked by an efficient follow-up system, which should be instituted in every department of physical medicine if it is ever hoped to compile worthwhile data on the results of therapy.

The foregoing analysis leads one to accept as true the statement by Scull [6] that the nucleus of physical therapy as a whole is the quartet of rest, heat, massage and exercise, and that nothing has been added to these in principle since the days of the ancients except irradiation, involving roentgen rays and radium. Furthermore, the number and variety of the treatments leads to the conclusion that accurate knowledge of the relative value of the various forms of therapy and of the physiologic changes which they induce is still meager, and that empiricism continues to play too large a role in the prescription of physical forms of treatment. The solution of these problems awaits the further efforts of physiologists, biophysicists and biochemists to obtain by controlled observations a more exact appraisal of the comparative value of various types of therapy and the physiologic alterations which they bring about, not only in the experimental animal but, primarily, in man.

Physical medicine has progressed to a point at which it must be considered a separate and distinct medical specialty.[7] From this it may be logically concluded that the physician who has devoted time and special study to this subject may justly be regarded as a specialist in physical medicine, occupying a position comparable to that of others especially qualified in the various fields of medicine and surgery. It has recently been suggested that the term "physiatrist" be adopted as a suitable designation for doctors who are properly qualified in this specialty. If the practicing physician will avail himself of the experience and advice of the physiatrist in the same way as he avails himself of that of the roentgenologist, the gastroenterologist, the surgeon and other qualified specialists, suitable types of physical and occupational therapy can be instituted more efficiently in appropriate cases, thereby safeguarding the best interests of the patient, minimizing the loss of time and lessening the incidence of disappointing results which sometimes bring physical therapy into disrepute. On the other hand, the specialist in physical medicine must be aware of his obligations toward the referring physician. He should insist that the latter follow the case with him concurrently, he should advise with his colleague when changes of treatment are indicated, and when the case is concluded or further physical therapy is no longer desirable, the physiatrist should make sure that the patient returns to his original physician. Closer cooperation of this kind and better understanding between the general practitioner and the specialist in physical medicine must be fostered, if the large number of patients who need physical therapy are to receive the most effective treatment.

5. Pemberton, R.: Physiologic Influence of Massage, in Mock, H. E.; Pemberton, R., and Coulter, J. S.: Principles and Practice of Physical Therapy, Hagerstown, Md., W. F. Prior Company, Inc., 1934, vol. 1, chap. 6.

6. Scull, C. W.: Massage: Physiologic Basis, Arch. Phys. Med. **26**: 159-167 (March) 1945.

7. Krusen, F. H.: The Future of Physical Medicine, J. A. M. A. **125**: 1093-1097 (Aug. 19) 1944.

CANITIES AND ALOPECIA IN CHILDREN ASSOCIATED WITH AVITAMINOSIS

Preliminary Report

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In order to understand the so-called minimal or subclinical nutritional deficiency reactions observed in the United States, it is well to consider the severe or extreme reactions which may be observed elsewhere and especially in tropical America. At the Hospital San Juan de Dios in San José, Costa Rica, special attention has been given in the past three years to the study of changes in the hair of infants and young children with severe avitaminosis. Hair disturbances have been noted especially in the severe forms of vitamin A deficiencies, pellagra, riboflavin deficiency (cheilosis), nutritional edemas, beriberi and in the mixed forms of these general types. Such extreme hair disturbances have not been seen in the nutritional disturbances in the United States according to Blankenhorn,[1] Spies [2] and Vilter.[3] In the Medical Survey of Nutrition in Newfoundland,[4] note was made of a form of change in the hair, namely a dry, lackluster hair, so-called "staring hair." A number of South African investigators (Trowell,[5] Kark,[6] Williams,[7] the Gillmans [8] and their associates [9]) have described changes in the hair associated with severe nutritional diseases in children. According to Gillman and Gillman,[8a] Trowell [5] was the first to suggest that this nutritional deficiency syndrome observed by the various authors was probably infantile pellagra. Gillman and Gillman [8a] in Johannesburg, Union of South Africa, have done extensive work in that syndrome which they also call infantile pellagra. Clinically, this is "characterized by severe edema, typical cutaneous lesions, labial and angular stomatitis, glossitis, diarrhea or steatorrhea, peculiar depigmentation of the skin over the entire body and a graying of the hair of the scalp with varying degrees of alopecia." Williams [7] in work in the Gold Coast colony has emphasized that the changes of the hair are more noticeable when the child is older, "say of 4 years in whom the condition may have become chronic; or perhaps owing to occasional improvements in the diet, and the child has had a series of relapses and recoveries." The changes in the hair which all these authors describe are similar to those which we have observed not only in the syndrome described herein, which we, too, believe to be a form of pellagra, but also in children who presented decided follicular keratoses and angular stomatitis and occasionally glossitis with no other changes as well as in children who presented generalized edema with normal blood proteins, and with no other cutaneous or mucosal reactions. True beriberi in children has been observed in Costa Rica by Peña Chavarría and his co-workers, and these changes in the hair have been observed in such children. It is possible that the changes are similar to but more severe than the dry "staring" hair observed in Newfoundland. It is our opinion, then, that canities and alopecia may occur in children with vitamin deficiency syndromes other than that described by Trowell, Kark, Williams and Gillman and Gillman. This occurrence of canities and alopecia in children is a manifestation of deficiency disease. As Williams indicated, the more striking changes of pigmentation were observed in those children with chronic conditions. However, the syndrome, from a clinical aspect, is not caused by a deficiency of any of the well known vitamins such as nicotinic acid, thiamine, riboflavin or vitamin A. According to Vilter,[3] it may be related to a deficiency of one of the less well known members of the vitamin B complex. It is curious that no similar severe reactions of the hair have been observed in adult vitamin deficiency syndromes even of the extreme types which are found so easily in Central America. For adults, presumably, Savill [10] has indicated that "diseases of the intestinal canal in particular have in many cases hastened the onset of canities." She has reported, in a few instances, gradual improvement of the hair after improvement of the systemic condition.

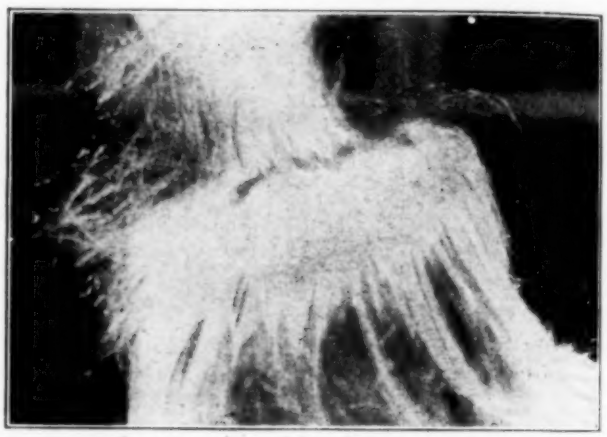

Fig. 1.—Return of pigment to the hair at proximal ends of shafts in a young girl previously ill of diarrhea and edema.

The changes in Costa Rica are observed for the most part in the hair of white and mestizo children.

These disturbances in the hair of children follow a similar pattern of development. The hair becomes dry, loses color, usually in toto, and is more fragile. It becomes loosened and is easily pulled out of the scalp. While talking to the child one can remove a handful of

From the Department of Pediatrics of the San Juan de Dios Hospital, San José Costa Rica, Dr. E. Cordero-Carvajal, Dr. C. Saénz-Herrera (Chief of Service) and Dr. Antonio Peña Chavarría (Director) and the Department of Dermatology and Syphilology of the College of Medicine of the University of Cincinnati, Dr. Leon Goldman. Work started under a grant from the John R. and Helen Markle Foundation through the Association of American Medical Colleges, Dr. Henry E. Meleny, Chairman.

Biotin furnished by Merck & Co., Inc.

Dr. Marion Blankenhorn, Dr. Tom Spies and Dr. Richard Vilter made a critical survey of the preliminary study.

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3. Vilter, R.: Personal communication to the authors.
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6. Kark, S. L., quoted by Gillman and Gillman.[8]
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8. (*a*) Gillman, T., and Gillman, J.: Powdered Stomach in Treatment of Fatty Liver and Other Manifestations of Infantile Pellagra, Arch. Int. Med. **76**: 63 (Aug.) 1945. (*b*) Gillman, T., and Gillman, J.: Infantile Pellagra, J. A. M. A. **129**: 12 (Sept. 1) 1945.
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10. Savill, A.: The Hair and Scalp, London, Edward Arnold & Co., 1935, p. 31.

hair without any pain or discomfort to the child. In some instances, the spontaneous loss of hair has been more pronounced over the frontal area and has produced on the sides the so-called "professor's corners"

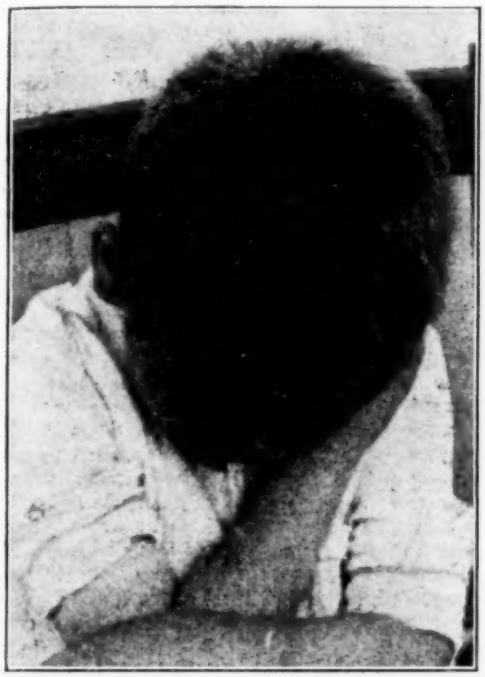

Fig. 2.—More advanced stage of return of growth and pigment in the hair of a young boy who had had follicular keratoses, angular stomatitis and glossitis.

and in front the widened forehead, both characteristic of the idiopathic baldness in the adult.

The more interesting changes are those of depigmentation varying from slight graying of the hair to intense

Fig. 3.—Frontal alopecia with slight canities in a child with cirrhosis and generalized edema.

whiteness. This color change is diffusely spread throughout the scalp. With gradual improvement over a period of weeks to months, the pigment of the hair returns first at the scalp attachment and rapidly spreads through the shaft of the hair. The return of pigment in attached hairs may be more rapid than the return of growth in bald areas. Selected hairs were mounted and studied microscopically. The most striking feature was the depigmentation and hypopigmentation of the distal portions of the hairs. The change was gradual and was associated with spotty absence and lessened intensity of the medulla with diminishing color of the cortex, so that the distal portions of the hair presented a pale yellow, waxy appearance with only a faint trace of the medulla, only a few recognizable granules of pigment and many air spaces. The diameter, unmeasured, of the distal portions appeared lessened. The proximal portions of the hair appeared normal. Subsequent examinations of these hairs under the polarizing microscope were negative. For comparison, microscopic studies were made of the hair of a 6 year old white child with premature canities of familial origin. Biotin therapy over a period of three months had no effect on the pigment. The hair, grossly, was coarse, thin and inelastic and was entirely white. Some hairs showed bits of distal pigmentation. Under the microscope the hair showed a few scattered granules of pigment at the roots and cortex. The medulla was colorless. In general, the chief differences between these hairs and the hairs associated with the nutritional defects were that the former were coarser and harder. Sample

Fig. 4.—Hair of boy in figure 2 adjacent to the zone of depigmentation; the diameter had diminished, the medulla was indistinct and absent and the pigment granules in the cortex were sparser and lighter; × 10.

Fig. 5.—Hair of boy in figure 2 at the zone of depigmentation; the medulla is seen to be less pronounced, lighter in color and absent in portions, the pigment granules are less intense in color and more scattered. Some air spaces are also present. × 160.

hair from children in Costa Rica with the hair disturbances has been taken now and then to illustrate the progress of the return of pigment, but no controlled time measurements of growth were taken. Except for microscopic examinations, no special studies thus far have been made of these hairs. The scalp revealed slight pityriasis but no seborrheic dermatitis. Changes were observed sometimes in the eyebrows and eyelashes. As mentioned previously, associated cutaneous changes varied from normal skin to severe follicular keratoses and severe pellagrous dermatitis.

In general, records of the food intake of the children who exhibited such hair disturbances indicated a diet that consisted chiefly of bananas and molasses. Detailed analyses of the diets of these children will be published in subsequent reports.

In an effort to understand the background of these changes in the hair which would recede with improvement in the patient's general condition, various fractions of vitamin B complex were given in an uncontrolled fashion to the children. It had been observed previously that the hospital diet had effected a cure, unless the patient died shortly after admission or presented such severe reactions as diarrhea, edema, hepatosis or cirrhosis when the parenteral use of the vitamin fractions was necessary. Originally it had been planned to attempt to study the addition of such specific substances as inositol, calcium pantothenate, para-aminobenzoic acid and choline, alone and together with other fractions of the B complex. However, in addition to usual routine therapies biotin, without assay studies, was given orally, usually in doses of 0.25 mg. two or three times a day. With the addition of biotin, the return of both pigment and growth of the hair appeared to be accelerated definitely over that observed on a hospital diet or a hospital diet plus thiamine plus nicotinamide and other vitamins. These studies have been wholly uncontrolled; hence, the assumption of the more rapid action of biotin is purely an opinion and not a proved fact. Since similar cases of interesting changes in the hair are still available for additional studies, an effort will be made to determine, with due allowance for individual variations, the comparative accelerative effect of the various fractions of the B complex group.

CONCLUSIONS

In Costa Rica infants and young children with severe avitaminosis, especially vitamin A deficiency, pellagra, riboflavin deficiency, beriberi, nutritional edemas or mixed avitaminosis syndromes, have been observed to exhibit characteristic associated changes in the hair, both loss, diffuse or especially pronounced in the frontal area, and depigmentation. These changes in the hair resemble those reported previously by Trowell, Kark, Williams, Gillman and Gillman and others in the syndrome of infantile pellagra in South Africa. These changes are easily reversible if the patient survives the severe vitamin deficiency state. Improvement may be produced by a general, adequate diet if it is utilized alone or together with polyvitamin mixtures of the B complex.

The addition of biotin is thought, but not proved, to accelerate over other therapies the return of normal growth and pigmentation to the hair. Similar severe changes were not observed in the hair of adults with decided vitamin deficiency syndromes.

Clinical Notes, Suggestions and New Instruments

THE CONTROL OF BLEEDING DURING OPERATION BY INDUCED HYPOTENSION

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The olfactory groove meningioma is a benign tumor which arises from the midline of the floor of the anterior fossa of the skull, and its removal is beset with difficulties for the following reasons: First, the location of the tumor renders it relatively inaccessible; second, it is a large and vascular growth; third, its nutrient vessels come up through the base of the skull so that they are difficult to control until after the tumor is removed.

The best method of dealing with these tumors is to perform a right frontal craniotomy and to excise the portion of the right frontal lobe overlying the lateral aspect of the growth. With the electrosurgical unit the tumor is then removed in fragmentary fashion, after which the nutrient vessels in the floor of the skull at its area of attachment are treated by application of the cautery and bone wax. The loss of blood during operation may be severe. In many cases the surgeon makes extremely slow progress with the removal of the tumor until the patient's blood pressure falls as the result of loss of blood. After this occurs, bleeding from the cut surface of the tumor can be readily controlled, and the removal of the tumor goes on apace.

This was well illustrated by a patient who was operated on recently. The operation required three hours. In the first two hours less than one third of the growth had been removed. At this point the blood pressure fell from 130 to 80 because of loss of blood. Thereafter hemostasis was more readily effected, and the remainder of the tumor was quickly removed. Bleeding from the nutrient vessels coming up through the floor of the skull was then easily controlled by electrocautery, bone wax and pledgets of cotton soaked in thrombin solution. The patient received 1,500 cc. of blood during the operation, despite which the hemoglobin fell from a preoperative level of 12 Gm. to 8.9 Gm. forty-eight hours later.

For some years I have entertained the idea of lowering the patient's blood pressure by venipuncture during the first stage of these operations in order that bleeding from the tumor might be more readily controlled. Afterward the patient's own blood could be returned instead of transfusing blood from a donor. This method, however, has not been actually employed.

Kohlstaedt and Page [1] in 1943 in experiments with dogs described an ingenious method for the study of shock by arterial bleeding and infusion. Briefly, this method consists in placing a cannula in the femoral artery directed toward the heart. This cannula leads to a closed reservoir into which the dog is bled until the blood pressure is lowered to 30 mm. of mercury. The blood is mixed with an anticoagulant during its withdrawal. The arterial pressure is recorded on a kymograph. To raise the blood pressure the blood is infused into the femoral artery by the simple expedient of raising the pressure in the closed reservoir by pumping air into it.

This method permits the investigator to reduce the blood pressure to any desired level, hold it there as long as desired and then bring it back by infusion of the removed blood, provided, of course, that the animal is not permitted to go into terminal shock. In the treatment of hemorrhagic shock these authors found intra-arterial infusion more effective than intravenous.[2]

Page [3] found that the intra-arterial infusion method for the treatment of shock has several advantages. "(1) The delivery

1. Kohlstaedt, K. G., and Page, I. H.: Hemorrhagic Hypotension and Its Intra-Arterial and Intravenous Infusion of Blood, Arch. Surg. **47**: 178-191 (Aug.) 1943.

2. Glasser, O., and Page, I. H.: Prognostic Signs in Experimental Hemorrhagic Shock, Cleveland Clin. Quart. **13**: 125-127 (July) 1946. Kohlstaedt and Page.[1]

3. Page, I. H.: Vascular Mechanisms of Terminal Shock, Cleveland Clin. Quart. **13**: 1-8 (Jan.) 1946.

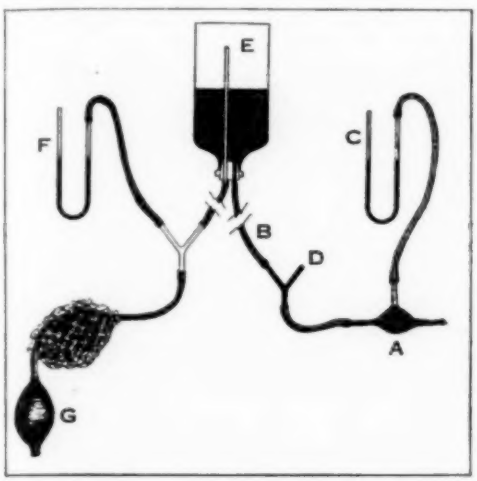
of blood into the aorta perfuses the coronary vessels, relieving myocardial ischemia and, since myocardial ischemia probably underlies the cardiac dilatation and insufficiency, places the heart rapidly in a state in which it can pump the infused blood to other areas; (2) when, before the infusion, the patient may have been apneic, at its start he will take a deep breath, as if the arterial filling had rapidly extended to the vital medullary centers; (3) in contrast with intravenous transfusion, blood pressure is rapidly restored. . . ."

In its effect, therefore, intra-arterial infusion of blood may be said to furnish the patient in shock with an accessory heart.

REPORT OF CASE

On April 3, 1946 a woman aged 49 presented herself with a complaint of blindness. She was 5 feet 2 inches (157.5 cm.) tall and weighed 280 pounds (127 Kg.). The history showed loss of sense of smell for one year. Dizzy spells began in June 1945, and it was discovered at that time that she had hypertension. In November she experienced a period of unconsciousness lasting two days, followed by frequent severe headaches and rapid failure of vision.

On examination the blood pressure was 200/130 mm. of mercury, which fell to 170/100 with rest in bed. The patient was tremendously obese, and there was bilateral optic atrophy with papilledema. She was able to see fingers with the right eye at 6 inches, and the left eye was totally blind. The sense of smell was completely absent. Roentgenologic examination of the skull showed some erosion of the posterior clinoid processes. The spinal fluid pressure was 450 mm. of water. The fluid contained 170 mg. of protein per hundred cubic centimeters. There was no evidence of renal failure. The possibility of malignant hypertension was at first entertained, but the diagnosis of olfactory groove meningioma soon became apparent.



Page procedure for induced hypotension. *A*, cannula in left dorsalis pedis artery; *B*, arm to reservoir to receive arterial blood; *C*, arm to manometer; *D*, arm to syringe with heparin solution; *E*, air space above the blood connected to *F*, another manometer, and to *G*, a rubber bulb by means of which the pressure in *E* is raised or lowered at will.

Operation was performed on April 19. With the patient under pentothal sodium anesthesia, a cannula (*A* in the illustration) was placed in the left dorsalis pedis artery directed toward the heart. One arm (*B*) of this glass cannula led to the closed reservoir to receive the arterial blood. Another arm led to a blood pressure manometer (*C*), and a third arm (*D*) to a syringe containing heparin solution. The air space (*E*) above the blood in the reservoir was connected to another manometer (*F*) and to a rubber bulb (*G*) by means of which the pressure in the air space above the blood could be raised or lowered at will. Screw or pinch clamps were used at strategic positions to control the flow of blood.

While the scalp incision was being made, 1,600 cc. of blood was allowed to flow rapidly into the reservoir, and in fifteen minutes the intra-arterial pressure fell from 140 mm. of mercury to 100. The pulse rate, which was 130 before bleeding, rose to 140. A right frontal craniotomy was performed, and the frontal lobe was elevated on a retractor. A large, soft, vascular meningioma was disclosed attached to the floor of the anterior fossa near the midline. In order to improve the surgical exposure the lower portion of the frontal lobe overlying the tumor was removed by block resection. The tumor was then removed in fragmentary fashion with the electrosurgical unit and by digital enucleation. The anterior portion was found to have straddled the crista galli and lower portion of the falx. Its posterior portion caused pressure on both optic nerves.

The tumor was extremely vascular, but despite this there was little loss of blood during the procedure. When arteries were divided, bleeding could be readily controlled by application of the electrocautery. In addition, it was noted that the blood clotted quickly, and the clot was quite firm. After removal of the growth the nutrient vessels in the floor of the skull at the area of the attachment of the tumor were readily controlled by electrocautery, and it was not necessary to use thrombin solution or bone wax to complete the hemostasis.

The pressure in the reservoir was then increased, and the patient's blood was infused into the dorsalis pedis artery. The operator waited until 1,100 cc. of blood had been infused before closing the wound. The infusion raised the intra-arterial pressure from 90 to 120 mm. of mercury and resulted in some bleeding from the scalp incision but none from the tumor bed. The wound was then closed.

When the patient arrived at the ward the pulse was 120 and the blood pressure 150/100 mm. of mercury. The tumor in this case was removed more satisfactorily and with less bleeding than in any other case in the operator's experience. The total operating time was two hours and thirty-five minutes. The actual operating time was less, because the operation was suspended for about thirty minutes to watch for recurrence of bleeding in the tumor bed during the arterial infusion. The last 500 cc. of blood in the reservoir was discarded because it had clotted as a result of insufficient heparin solution. Despite this the hemoglobin on the fourth postoperative day was only reduced to 12.0 from a preoperative level of 13.3 Gm. Convalescence was smooth except for an unexplained low grade fever which persisted for eight days after operation. Because of this fever the patient was not discharged until the thirteenth postoperative day. She was last seen ten weeks later, at which time her progress was quite satisfactory. The vision was improving, and the blood pressure was 180/100 mm. of mercury.

The experience with this method in this 1 case, therefore, was certainly encouraging, and it seems that the procedure should be given a further trial.[4]

COMMENT

Page [3] has shown that peripheral vasoconstriction is an early and constant accompaniment of shock. He has shown that during and for a short time after the initiation of shock this vasoconstriction is neurogenic due to vasomotor reflexes. As the brief period of nervous irritation passes off and unfiltrable substance appears in the plasma, which, when injected into the vessels of an isolated perfused rabbit's ear, causes severe and prolonged vasoconstriction. Thus, there is good reason to believe that the persistent nonneurogenic vasoconstriction in shock is due to the appearance of this substance in the blood. Evidence indicates that it is neither of renal nor of adrenal origin but arises from the site of tissue injury. We believe that it was chiefly this peripheral vasoconstriction rather than the reduction of blood pressure which was responsible for the ease with which hemostasis was obtained in the case reported. It is not necessary to reduce the blood pressure to a dangerously low level in order to bring the peripheral vasoconstrictor mechanism into play.

4. Since its use in this original case the Page procedure or a modification of it has been employed in 6 additional cases with similar gratifying results.

SUMMARY

Hemostasis was aided during operation for brain tumor by preoperative arterial puncture and blood letting. The patient's blood was returned intra-arterially at the conclusion of the operation, thus avoiding the necessity of giving a transfusion.

DIFFUSE CALCIFICATION OF THE PANCREAS

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The presence of stones within the ducts of the pancreas has been recorded in the literature in 220 instances up to the year 1944.[1] Diffuse calcification of the pancreas differs, in that the process of calcification is distributed throughout the organ, with associated destruction of the parenchyma. The organ may contain many cysts of varying size and much connective tissue; it may resemble a "bag of stones."[2] Beling[3] collected 12 reports of diffuse calcification and added 1 of his own. He and his associates later added another.[4] King and Waghelstein[5] reported 4 instances of this disease. Reviewing the reports of Beling they disagreed with the diagnosis in 2 cases which they thought were questionable. Darling[6] recorded an instance of diffuse calcification of the pancreas observed in Australia. The case herewith reported brings the number to 18.

REPORT OF CASE

First Admission.—History: A white man aged 23 was admitted to the Santa Barbara Cottage Hospital in September 1944, referred to me by Dr. Artemas Strong of Santa Paula. Three years before he had been seized with "quite severe" epigastric pain over the upper half of the abdomen, associated with nausea, vomiting, diarrhea and a "low fever." He was ill for seven days. Over a period of two years similar pains occurred every four to six weeks; their duration was five to seven days. The only difference was the absence of diarrhea after the first attack. During the third year of his illness the "spells" occurred each four weeks. In 1942 a diagnosis of duodenal ulcer had been made elsewhere and confirmed by roentgen ray. He was placed on a plain diet with milk. His pain continued.

On hospitalization in August 1944 he stated that he was nauseated by all foods excepting bouillon and so had taken only that. His weight in six months had gone from 143 to 118 pounds (65 Kg. to 54 Kg.), a loss of 25 pounds (11 Kg.). His height was 5 feet 4 inches (163 cm.). He had been having daily two loose, not watery, dark brown stools. The urine was straw colored. Jaundice had not been observed.

For the past two years he had been a sprayer in a lemon orchard, using arsenate of lead. He smoked half a package of cigarets a day and used alcohol regularly, occasionally becoming intoxicated.

Examination: Examination revealed a dehydrated, acutely ill man, who seemed older than his 23 years. The tongue was dry and red, the gums boggy and bleeding and the teeth in need of repair. A lead line was absent. The blood pressure was 122 systolic and 70 diastolic. The abdomen was moderately distended; there was much tenderness throughout the upper quadrant and the left lower quadrant. Rebound tenderness was present over the left upper quadrant. The temperature was 100 F. the first day after admission, 99 F. the second and normal or lower thereafter.

Laboratory Observations: On examination of the blood, the sedimentation rate was 20 mm. in sixty minutes (Cutter); hemoglobin 77 per cent (11.7 Gm.); erythrocytes 3,600,000; leukocytes 7,800, with polymorphonuclears 82 per cent and lymphocytes 18 per cent. No basophilic punctation was found. The stools were loose and dark brown, with 4 plus occult blood present.

Roentgenologic Observations: The stomach was dilated and contained fluid. The duodenal bulb was decidedly irritable and retained its barium poorly. There was pronounced segmentation of the barium mixture in the jejunal coils. After four hours there was a 60 per cent retention of barium in the stomach. The diagnosis was obstructive duodenal ulcer, deficiency state. Films of the right upper quadrant after the oral administration of priodax showed a well filled gallbladder; adequate contraction occurred under the stimulus of a fat meal. There was no evidence of calculus.

Treatment: The patient was placed on Sippy ulcer management, and he returned home.

Second Admission.—History: He was readmitted to the hospital four months later, at which time he stated that after the institution of ulcer management he was free of symptoms for four weeks. Pain then recurred; it started on the left side of the abdomen in the upper quadrant, radiating downward on the same side of the abdomen and down the inner side of the leg. The pain was constant, with exacerbations of severe pain which required hypodermics of morphine sulfate for relief. When not given the drug the patient walked and moved about continuously. If he sat in the same position for fifteen minutes the pain returned. He also complained of constant tenderness in the left side of the abdomen. His appetite was poor, and he had been nauseated and had vomited every morning for the past month.

Shadows indicating calculi in the head of the pancreas and extending across the spine into the tail.

Examination: Persistent spasm was present on the left side in both the upper and lower quadrants of the abdomen, most pronounced over the left upper quadrant. The oral temperature varied from 99 to 99.2 F.

Laboratory Observations: The laboratory work on this admission included examinations of the blood. The sedimentation rate (Cutter) was a 5 mm. fall in 60 minutes; amylase 68 units; nonprotein nitrogen 25 mg. per hundred cubic centimeters; hemoglobin concentration 90 per cent (15.1 Gm. per hundred cubic centimeters); erythrocytes 4,500,000, and leukocytes 6,300. The percentages of the various types of leukocytes

1. Jaleski, T. C.: Pancreatic Lithiasis, Ann. Int. Med. **20**: 940 (June) 1944.
2. Pasternack, J. G.: Calcereous Pancreatitis: Report of Three Cases with Autopsies, Ann. Int. Med. **19**: 757 (Nov.) 1943.
3. Beling, C. A.: Calcification of the Pancreas, Am. J. Digest. **7**: 231 (June) 1940.
4. Beling, C. A.; Baker, C. F., and Marquis, W. J.: Pancreatic Calcification, Radiology **38**: 188 (Feb.) 1942.
5. King, A. B., and Waghelstein, J. M.: Calcification of the Pancreas, Arch. Int. Med. **69**: 165 (Feb.) 1942.
6. Darling, H. C. R.: A Case of Progressive Calcification of the Pancreas Secondary to Chronic Relapsing Pancreatitis, M. J. Australia **2**: 7 (July 4) 1942.

were eosinophils 4, monocytes 8, lymphocytes 26 and polymorphonuclears 62. A glucose tolerance test gave a fasting blood sugar of 94; first hour 190; second hour 195, and third hour 99. The urine contained 8 per cent, or 2.4 Gm. of sugar in the second hour specimen and 0.5 per cent (0.67 Gm.) in the third hour.

Roentgenologic Examination: On a flat plate, throughout the bed of the pancreas there were multiple calcium shadows, indicating calcification within that region. These shadows were present at the examination of Aug. 15, 1944, at which time they were not recognized.

Treatment: The patient required frequent hypodermics of morphine sulfate, and it was evident that he needed help. At operation, the distal two thirds of the pancreas was extirpated, leaving the head, which still was the seat of diffuse calcification. The portion of the gland removed was the site of cysts of variable size up to 1 cm. in diameter. Two of these were definite abscesses.

Histologic Observations: On histologic examination of decalcified tissue, only a few small islands of normal pancreatic tissue were found. The bulk of the organ had been replaced by dense hyaline connective tissue. Between the hyaline connective tissue in many instances there were isolated islands of Langerhans.

COMMENT

The etiology of calcification of the parenchyma of the pancreas is not known, although the rate of development of the calcification may be rapid. King and Waghelstein [5] reported a definite increase in the amount of calcium deposited in 1 instance in eighteen months. In about half the cases reported there was disease of the gallbladder with stones. Beling, Baker and Marquis [4] stated that calcification follows repeated attacks of pancreatitis. Pasternack [2] regards parenchymal calcification as a sequel to infection, inflammation and necrosis, quoting from the work of Edmondson and Fields.[7] The role of alcoholism, apart from its apparent frequency, is speculative. Like chronic gallbladder disease, it was a factor in about half of the reported instances of diffuse calcification of the pancreas. Leroy Brooks [8] in a large general hospital has observed the frequence occurrence of acute pancreatitis after bouts of alcoholism in chronic alcoholic addicts. William Russell [9] believes that the most likely explanation is that it represents a flare up of a healed acute pancreatic necrosis.

There is no clear-cut symptom complex suggesting diffuse calcification of the pancreas. Epigastric pain is the most constant symptom. It may be mild or severe, intermittent or constant. It may radiate to the back, to either shoulder or down into the abdomen. In this patient, the pain was present in the upper half and in the entire left side of the abdomen. Frequent bulky, pale stools with large amounts of fat and undigested meat fibers have been recorded. This was not observed in the case reported here, and yet the pancreas was extensively diseased.

Evidence of disturbed carbohydrate metabolism has been described in 45 per cent of the reported instances. If glucose tolerance tests had been made in all cases, the incidence would undoubtedly have been higher. Yet there is no apparent relation between the degree of destruction of pancreatic tissue and the altered carbohydrate metabolism. The blood calcium level was 10 mg. in this patient. In some few reported instances the level has been lowered.

Subsequent to operation the patient has remained free of pain. Diabetes has not developed. The irritability of the duodenal bulb undoubtedly resulted from pancreatic irritation.

SUMMARY

Only 17 cases of diffuse calcification of the pancreas have been reported to date. It is unlikely that this disease is so unusual. It should be considered in the diagnosis when diffuse abdominal pain is present, and particularly when a history of repeated bouts of pancreatitis is given. Roentgenologic examination of the abdomen before the ingestion of a barium meal will prove the diagnosis.

Our patient made an uneventful recovery after the removal of the distal two thirds of the pancreas, and diabetes has not developed.

The absence of diabetes even in the presence of widespread destruction of the gland is not incompatible with present day knowledge of the physiology of the pancreas, according to Gomori.[10]

7. Edmondson, H. A., and Fields, I. A.: Relation of Calcium and Lipids to Acute Pancreatic Necrosis, Arch. Int. Med. **69**: 177 (Feb.) 1942.
8. Brooks, L.: Personal communication to the author.
9. Russell, W.: Personal communication to the author.

CYLINDROMA

Report of an Unusually Extensive Case

DAVID L. COOPER, M.D.
Erie, Pa.

Cylindroma is a rare cutaneous affliction. In the most comprehensive article on the subject written in 1933, Ronchese [1] stated that "up to 1932, only 31 fully developed cases were reported. Of these, 19 occurred in females and 12 in males." Since 1933, several other cases have been reported, some of which will be cited later. However, it is doubtful whether more than 50 cases have been reported in all medical literature. Without doubt some cases have been seen which have not been reported.

The lesions of cylindroma usually occur on the scalp in the form of pink or bluish mushroom-like or pedunculated or lobulated tumors, varying in size from that of a pea to that of an apple. Occasionally they are found on the extremities and trunk; there they lose their pedunculated character and appear to be embedded in the subcutis. They may be of different consistency and feel firm or rubbery to the touch. They often occur in several members of the family through one or more generations; they grow very slowly and are practically always benign. The patients are usually in good health and in most cases are not greatly inconvenienced.

NOMENCLATURE

Various synonyms have been used to describe these lesions. Ronchese [1] called them multiple benign epithelioma. He thought that "multiple benign, familial, nodular, turban-like basal cell epithelioma of the scalp with cylindromatous degeneration" was the most complete and clear name but too long. He believed that "turban tumor" was the shortest and best. I believe that "turban tumor" is the most descriptive but not the most appropriate name, for while the term "turban" does accurately describe the Turkish-headdress-like appearance of the lesions on the scalp, it does not describe the isolated and grouped lesions which may occur on the face, neck, extremities and body; moreover, the lesion should not be called a tumor because histologically it is a nevus growing from embryonal rests and developing later in life.

Other names have been proposed. Cohn [2] reported the disease of his patient as a case of multiple sarcoma. Stillians [3] and Zakon [4] called it nevoepithelioma adenoides. Jones, Alden and Bishop [5] referred to their case as turban tumor or sweat gland carcinoma. Gabarro [6] who reported the most extensive

10. Gomori, G.: The Histology of the Normal and Diseased Pancreas, Bull. New York Acad. Med. **21**: 99 (Feb.) 1945.
1. Ronchese, F.: Multiple Benign Epithelioma of Scalp (Turban Tumors), Am. J. Cancer **18**: 875 (Aug.) 1933.
2. Cohn, I. E.: A Case of Multiple Sarcoma, J. Cutan. & Genito-Urin. Dis. **10**: 393, 1892.
3. Stillians, A. W.: Nevo-Epithelioma Adenoides (Cylindroma) of the Scalp, Arch. Dermat. & Syph. **27**: 481 (March) 1933.
4. Zakon, S. J.: Naevo-Epithelioma Adenoides (Cylindroma) of Scalp, Arch. Dermat. & Syph. **40**: 945 (Dec.) 1939.
5. Jones, J. W.; Alden, H. S., and Bishop, E. L.: Turban Tumor or Sweat Gland Carcinoma: So-Called Epithelioma of the Scalp; Report of a Case Illustrating Its Epithelial Structure, Arch. Dermat. & Syph. **26**: 656 (Oct.) 1932.
6. Gabarro, P.: An Enormous Epithelioma Adenoides Cysticum of the Scalp, Brit. J. Surg. **33**: 188 (Oct.) 1945.

case in medical literature gave it still another name—epithelioma adenoides cysticum.

The disease has been referred to variously by other terms—syringoma, syringocystadenoma, plexiform sarcoma, angiosarcoma, endothelioma capitis and tomato tumors.

Fig. 1.—Lateral view showing grapelike and tomato-like appearance of lesions. Note involvement of the ear and neck as well as of the scalp.

Fig. 2.—Rear view showing involvement of the back of the scalp with a small group of lesions on the lower portion of the back.

PATHOGENESIS

The lesions have been regarded as basal cell epithelioma by Frieboes, Watanabe, Hoffmann and others. Ricker and Schwab believed that they were derived from sweat glands. The most satisfactory explanation of their origin is that they arise from the pilosebaceous system, particularly from the epithelium of sebaceous glands.

DIAGNOSIS

The diagnosis of cylindroma is fairly easy. The onset is usually early in life and may follow trauma. The lesions become fully developed in later life (40 to 70). They grow and multiply slowly. Usually other members of the family are similarly afflicted, particularly the women. The general health is good and complaints are absent except for the unsightly appearance and foul-smelling secretion.

There are several conditions which may be confused with cylindroma:

1. Sebaceous cyst. These are usually solitary and are covered by pale or normal skin. They are spherical in shape and are not lobulated or pedunculated.

Fig. 3.—Anterior view showing extensive involvement of the scalp with solitary lesions on the breasts and the upper part of the abdomen. The large lesion overhanging the right eye and the smaller lesion on the left breast were removed for biopsy.

2. Endothelioma capitis. Biopsy will distinguish this disease from cylindroma.

3. Neurofibromatosus (von Recklinghausen's disease). The diagnostic feature of a neurofibroma is the fact that it may be invaginated through a ring in the skin but will spring back when released. There is only a 17 per cent hereditary factor in von Recklinghausen's disease, whereas almost all cases of cylindroma give a history of involvement of other members of the family.

TREATMENT

If they are not too extensive, the lesions may be removed by electrodesiccation or surgical excision. When there is extensive involvement, as in the patient described by Gabarro,[6] radical surgical removal followed by a plastic repair may be successfully employed. Roentgen rays are not of value against this disease.

REPORT OF CASE

The following case of cylindroma is reported because (1) it is believed to be the most extensive case ever reported in American medical literature, and (2) surgical intervention was refused.

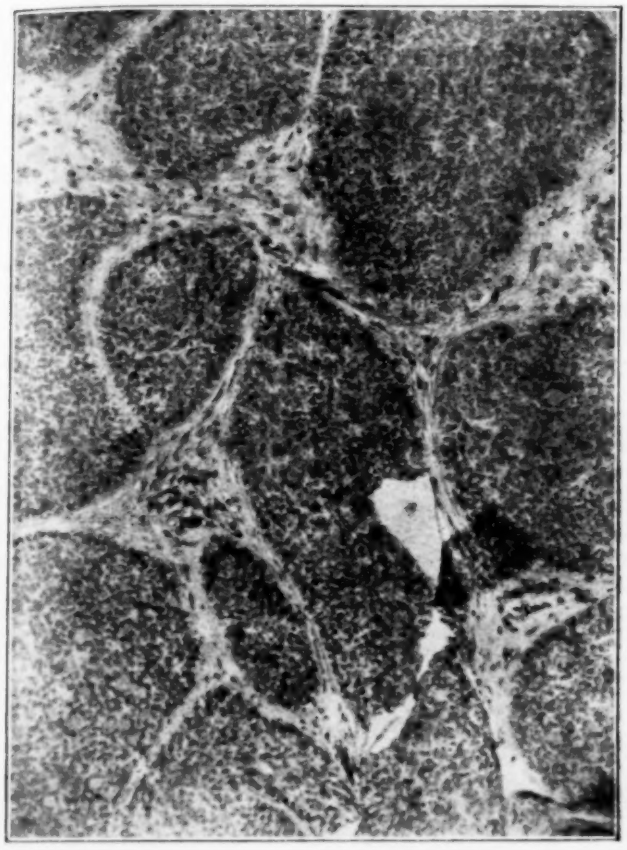


Fig. 4.—Low power magnification, slightly reduced. Note the rounded masses of epithelial cells separated by bands of hyalinized connective tissue.

Mrs. J. R., a white woman aged 47, was first seen in the outpatient dermatologic department of Hamot Hospital on Feb. 15, 1946. Her general health was good. She stated that following an injury to her scalp which occurred in early life she noticed "some small lumps" on her scalp. These continued to grow in size and number. Examination revealed a growth covering the entire scalp and extending down over the eyes and ears (fig. 3). The lesions were pinkish and bluish and varied from the size of a pea to that of a small orange. The largest lesion hung down over the right eye and interfered with the vision. The lesions were lobulated and pedunculated. Hair was present in moderate amount.

The gross appearance was that of a scalp covered with grapes and small tomatoes (fig. 1). Some of the lesions were firm and some were rubbery in consistency. There were also various sizes of solitary nodules on the face, neck, chest, abdomen and upper part of the back. There was a small group of closely set lesions on the lower portion of the back (fig. 2).

An unbearably foul odor due to a purulent secretion between the tumors emanated from the scalp. It was almost impossible to be near the patient.

She stated that her father and a sister, both of whom are deceased, had had similar but much less extensive, lesions of the scalp. A niece, the daughter of the sister mentioned, is similarly afflicted.

On Feb. 22, 1946 the patient was admitted to Hamot Hospital. Through the use of penicillin compresses (1 to 500) and penicillin by injection, the infection cleared up and the foul odor subsided somewhat. On March 13, 1946 two lesions were removed surgically by Dr. J. W. Switzer. One of these was the largest, which hung down over the right eye. During its removal, there was difficulty in controlling the bleeding. The other lesion which was removed had been located on the left side of the chest and was about the size of a walnut. Biopsies were performed by Dr. E. L. Armstrong.

It was suggested to the patient that mass removal of the tumor as performed by Gabarro[6] on his patient be permitted, but the patient's husband refused. It is of interest that she took great pride in her unusual appearance and enjoyed being the center of attraction when presented before various clinics.

She was discharged from the hospital on March 29, 1946.

BIOPSY

The biopsy report was as follows: The sections showed that the specimens were composed of varying sized rounded masses of epithelium derived from the basal layer. These epithelial masses were separated by bands of hyalinized connective tissue. The bands were varied in width. The cells were more or less uniform in size and were small, with deep-staining rounded nuclei. Mitotic figures could not be demonstrated in nuclei of basal cells (see figs. 4 and 5).

This description compares favorably with that given by McCarthy in "Histopathology of Skin Diseases" (page 358).

SUMMARY

1. This case of cylindroma is believed to be the most extensive one reported in American medical literature. The case is typical, however, in that it occurred in a woman who gave a history of involvement of other members of the family.

Fig. 5.—High power magnification, slightly reduced. Note the uniformity of size of the cells and the deep-staining rounded nuclei. Mitotic figures are absent.

2. Surgical intervention, except for the removal of a large mass which interfered with vision of the right eye and a small lesion from the left side of the chest for biopsy, was refused.

134 West Ninth Street.

Special Article

OBSERVATIONS AT THE 1946 DOCTORS' ART SHOW

ROSE LAUGHLIN
Evansville, Ind.

The American Physicians Art Association, now almost ten years young, held their annual art show at San Francisco July 1 to 5, 1946. The city fathers made the beautiful War Memorial Civic Opera House available for the purpose. The entire mezzanine floor was used, so that over 5,000 square feet of hanging surface was available. This was a larger area than that of any previous exhibit.

On the first day, the front doors were kept locked until the official opening hour, noon. Yet for two hours before noon over 400 eager persons "beat the gun" by coming around to the back door, through the stage entrance. It was an impressive demonstration of art laughing at locksmiths.

The surgeons, gynecologists and obstetricians and the neurologists and psychiatrists of the American Medical Association held their scientific meetings on other floors of the Opera House while the art exhibit was taking place on the mezzanine.

An amusing incident occurred on the first day, before everybody attending the convention became oriented. A couple of young physicians still in army uniform walked up the stairs and spent half an hour in the art show before one of them suddenly remembered that he was due in room 302 where the N. P. (neurology and psychiatry) section was holding its scientific meeting. His companion seemed to enjoy his discomfiture. "Why Bill, you're in the N. P. right here. Look at these pictures. We try to get our patients to do occupational therapy like this, and here we are—you and I—not practicing what we preach."

He was expressing, in a breezy way, what hundreds of physicians have discovered and what was best expressed by that great scholar Sir William Osler when he said: "One cannot practice medicine alone, and practice it early and late, as so many of us have to do, and hope to escape the malign influences of a routine life. The incessant concentration of thought upon one subject, however interesting, tethers a man's mind in a narrow field. The physician needs a clear head and a kind heart; his work is arduous and complex, requiring the exercise of the very highest faculties of the mind, while constantly appealing to the emotions and finer feelings."

The proof of the doctor's need for art as a recreation, as a form of "work by the side of work," is to be found in the fact that over 300 of this year's art works were by physicians who had been "dabbling in art" less than three years; of these physicians 112 were at it less than one year!

The twenty-four judges were men and women on the firing line of the various art mediums who had been selected by Dr. Grace Morley, head of the San Francisco Museum of Art. They worked for hours, singly and in groups, returning several times when necessary, reviewing pieces under different lights, taking things down off the walls, putting some back, removing others, gathering them in small groups on the floor and arguing amongst themselves like lawyers over their respective merits.

The judges seemed to favor originality of conception more than execution. In some instances they were critical of the mixing of styles in one piece. They were more severe with the older (in experience) artists than with the newcomers.

General view of the 1946 exhibit of the American Physicians Art Association.

Average Size of the Hypophysial Fossa.—The hypophysial fossas of young adult soldier patients have been measured in order to establish a standard. The average size was found to be anteroposterior 10.66 and depth 8.30 mm. . . . By comparison the average measurement of the fossas of six pituitary adenomas was anteroposterior 23 and depth 17 mm.—Heublein, G. W.: Some Observations Concerning the Hypophysial Fossa, *Am. J. Roentgenol.* **56**:318 (Sept.) 1946.

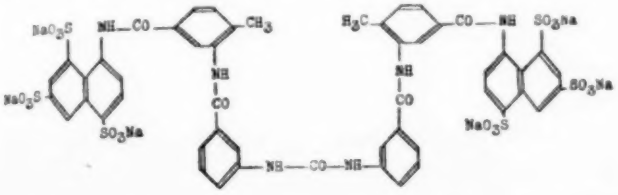
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

NAPHURIDE SODIUM. — Suramin Sodium. — Hexasodium bis-(*m*-aminobenzoyl-*m*-amino-γ-methylbenzoyl-1-naphthylamino-4,6,8-trisulfonate) carbamide. — $C_{51}H_{34}O_{23}N_6S_6Na_6$. — M. W. 1429.18. The structural formula of naphuride sodium may be represented as follows:



Actions and Uses.—Naphuride sodium is a trypanosomicide which readily dissolves in sterile water; the solution is neutral in reaction, odorless and almost tasteless. Only freshly made solutions should be employed. It is slowly eliminated and remains active in the body for a considerable period, offering several months' protection against reinfection with the trypanosomes of both forms (Gambien and Rhodesian) of African sleeping sickness. It is claimed to produce excellent results in the first stage of trypanosomiasis and a favorable influence in the second stage of the disease. It is said to be of particular value in the prophylaxis of sleeping sickness. While the drug is relatively safe when properly used, it exerts an irritant action on the kidney; even after comparatively small doses there is frequent occurrence of albumin and sometimes hyaline and granular casts and red blood cells in the urine. However, albuminuria generally disappears spontaneously in about six weeks. The drug should be used only with great caution in patients with renal insufficiency and albuminuria, since severe nephritis, amblyopia, amaurosis and anuria have been noted. In larger doses naphuride sodium may have a hemolytic action. Occasionally dermatitis, chill, fever, headache, nausea and pruritus may be noticed, and more rarely conjunctivitis, stomatitis, cutaneous hemorrhages, globinuria and agranulocytosis. Since the compound is slowly eliminated and has a cumulative action, side effects may appear after cessation of treatment. The drug should not be continued in patients who show intolerance to initial doses. During treatment daily urinalysis and determination of blood pressure has been suggested, as have frequent complete blood counts, determination of nonprotein nitrogen content of the blood, and determination of the potassium, sodium and chloride content of the blood, so that degeneration of the adrenal cortex, if it occurs, may be detected early.

Dosage.—Naphuride sodium is usually administered intravenously in a freshly prepared 10 per cent solution. If a venipuncture is impossible, the solution may be injected intramuscularly. During the preparation of a solution, the powder is sprinkled to avoid formation of clumps on the surface of sterile distilled water. In the treatment of African sleeping sickness, the average single dose for adults is claimed to be 1 Gm. and the total dose from 5 to 10 Gm., 1 Gm. being given at weekly intervals. Some administer 1 Gm. on consecutive or on alternate days for three doses, followed by 1 Gm. weekly for from two to seven additional doses, so that the total dose is from 5 to 10 Gm. Combined treatment with naphuride sodium and tryparsamide has also been recommended, since cases with invasion of the central nervous system, as may occur early in the disease, are favorably influenced by the arsenical.

For the prophylaxis of African sleeping sickness the dose for adults is 1 Gm., for children from 0.3 to 0.75 Gm. and for infants from 0.15 to 0.2 Gm. The same dose is repeated in a week. At the expiration of three months, but not before, a similar prophylactic procedure may be followed.

Tests and Standards.—

Naphuride sodium occurs as a white to slightly pinkish, odorless, almost tasteless powder, which darkens on exposure to light. It is readily soluble in water; insoluble in acetone, benzene and ether. It is incompatible with strong acids or alkalis. The powder does not exhibit an exact melting point. An aqueous solution of naphuride sodium is slightly colored and is neutral to litmus (pH of a 10 per cent solution is about 6.0).

Place 1 cc. of 1 per cent solution of naphuride sodium in a test tube and add 2.5 cc. of *o*-phenanthroline ferrous complex solution (U. S. P. XII, p. 739): a red precipitate forms.

Naphuride sodium responds to tests for the presence of carbon, hydrogen, nitrogen, sulfur and sodium.

Dissolve about 0.5 Gm. of naphuride sodium in 20 cc. of water, add 5 cc. of hydrochloric acid; cool and then add 1 drop of tenth-normal sodium nitrite solution. Place a drop of the mixture on starch-iodide paper: a blue-black spot is produced *(absence of free amino groups).*

Fuse 1 Gm. of naphuride sodium with sodium hydroxide and add small portions of potassium nitrate until the melt is completely oxidized. After cooling, dissolve the residue in water, acidify with nitric acid and add 15 cc. of tenth-normal silver nitrate. Boil the mixture to expel the nitrite present, cool, filter to remove the silver chloride formed and titrate the excess of silver nitrate with tenth-normal ammonium thiocyanate solution, using ferric ammonium sulfate as the indicator: the amount of chloride found should not be more than 1 per cent.

Dry about 1 Gm. of naphuride sodium accurately weighed to constant weight at 150 C.: the loss in weight should not exceed 15.0 per cent.

Ash about 0.4 Gm. of naphuride sodium in the presence of sulfuric acid: the sulfated ash is not more than 30 per cent calculated to the dry substance.

Dissolve about 0.5 Gm. of naphuride sodium, accurately weighed, in 20 cc. of 10 per cent sodium hydroxide solution contained in a flask and heat under reflux for five hours. Cool, transfer the contents of the flask to a beaker and dilute to about 100 cc. Acidify the solution with 15 cc. of hydrochloride acid, cool to 0-10 C., add a few crystals of potassium bromide and titrate with tenth-normal sodium nitrite solution, using starch-iodide paste as the outside indicator. Each cubic centimeter of tenth-normal sodium nitrite is equivalent to 0.0238 Gm. of anhydrous naphuride: the amount of naphuride sodium found is not less than 97 per cent calculated to the dry basis.

WINTHROP CHEMICAL CO., INC., NEW YORK

Naphuride Sodium: 1 Gm. ampuls.

Council on Foods and Nutrition

ACCEPTED FOODS

The following food products have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

JAMES R. WILSON, M.D., *Secretary.*

PREPARATIONS USED IN THE FEEDING OF INFANTS (*See* Accepted Foods, 1939, p. 156).

Gerber Products Company, Fremont, Mich.

GERBER'S STRAINED OATMEAL consists of finely ground oat flour, nondiastatic malt, dried primary grown brewers' type yeast, dicalcium phosphate, salt and sodium iron pyrophosphate.

Analysis (submitted by manufacturer).—Moisture 6.8%, protein (N × 6.25) 14.7%, fat (acid hydrolysis) 7.3%, carbohydrate (other than crude fiber) 65.6%, crude fiber 1.2%, total ash 4.4%.

Calories.—110 per ounce; 3.9 per gram.

Vitamins and Minerals.—	Per Hundred Grams
Thiamine	2.0 mg.
Riboflavin	0.3 mg.
Calcium	516.0 mg.
Phosphorus	645.0 mg.
Iron	46.0 mg.
Copper	1.0 mg.

Libby, McNeill and Libby, Chicago.

LIBBY'S STRAINED AND HOMOGENIZED VEGETABLES WITH BEEF AND BARLEY consists of carrots, beef, tomato juice, potatoes, barley, celery, salt and onions.

Analysis (submitted by manufacturer).—Total solids 12.21%, total moisture 87.79%, total ash 1.20%, fat (ether extract) 0.06%, crude fiber 0.75%, protein 4.09%, carbohydrates (by difference) 6.11%, salt 1.00%, calcium 22.1 mg. per hundred grams, phosphorus 65.0 mg. per hundred grams, iron 2.1 mg. per hundred grams.

Calories.—41 per hundred grams.

Vitamins.—	Per Hundred Grams
Thiamine	0.077 mg.
Riboflavin	0.043 mg.
Niacin	1.33 mg.

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SATURDAY, NOVEMBER 9, 1946

THE Rh FACTOR: A CRITICAL APPRAISAL

The rapid application of the discovery of the Rh factor to the clinical problems of explanation and prevention of hemolytic intragroup transfusion reactions, as well as diagnosis and treatment of fetal erythroblastosis, has brought an avalanche of publications. Some of the conclusions seem to have been drawn hastily from limited observations. A large number of articles in magazines and in the daily press have been factually erroneous. The prevailing confusion is fraught with possible serious consequences. Some young couples have been advised not to have children for no other reason except that the husband was Rh positive and the wife Rh negative. In several instances the death of the first child of such couples was attributed to fetal erythroblastosis on the basis of the Rh factor determinations in the parents, while the necropsy revealed other causes of death. Cesarean sections have been advocated by some as a means of saving babies with erythroblastosis by eliminating the damage of the last few weeks of intrauterine life.

Much remains to be learned regarding the Rh factor, but the verified information thus far accumulated justifies certain conclusions with the reservation that they may have to be revised as our knowledge increases.

The evidence indicates that an Rh-negative wife of an Rh-positive man is almost certain to have at least one normal child unless she has received blood transfusions in the past. Transfusions of Rh-positive blood have been found in the history of an impressively large number of women whose first children had erythroblastosis. Only one in from twenty-five to fifty Rh-negative wives of Rh-positive husbands becomes sensitized to the Rh factor and gives birth to babies with erythroblastosis. The treatment of erythroblastosis with judiciously administered transfusions, preferably of Rh-negative blood, is saving a large proportion of infants who would have otherwise succumbed to the disease. One can nowadays be prepared for the approaching trouble by testing women for Rh antibodies during pregnancy. New types of antibodies have been discovered. To the previously known Rh agglutinins Race [1] and Wiener [2] have added an antibody which combines with the red cells without clumping them but which prevents the clumping of the red cells by a subsequently added agglutinating serum. Race calls it "incomplete" antibody, and Wiener named it "blocking antibody or blocker." Diamond [3] showed that agglutination by the serum of an Rh-negative person sensitized by Rh-positive blood may become manifest if a 50 per cent suspension of cells or preferably whole citrated blood is used when the usual technic employing a 2 per cent cell suspension has failed. Wiener [4] and Diamond [5] have shown that agglutination of Rh-positive red cells may be demonstrated in serum which fails to agglutinate in the usual test if serum or plasma or human or bovine albumin is used as a menstruum in place of isotonic solution of sodium chloride. Wiener uses the term "conglutinin" or "glutinin" for the substance responsible for the phenomenon. Coombs [6] suggested still another technic. He uses an antihuman globin serum produced in rabbits. A drop of it added to Rh-positive red cells clumps them though they failed to be agglutinated by the serum of a sensitized Rh-negative person. The antiglobulin serum produced in the rabbit reacts with the globulin of the Rh antibody, which covers the red cells with a fine film.

Probably these newly observed antibodies (incomplete, blockers and conglutinins) are all one and the same antibody to be distinguished from the regular agglutinins. The practical result thus far has been the possibility to detect Rh sensitization in almost 100 per cent of mothers of babies with erythroblastosis. Detection of sensitization during pregnancy means, as a rule, erythroblastosis in one of its forms in the infant except in cases in which antibodies have been left behind from a previous pregnancy. Therefore early testing and periodic follow-up during pregnancy are recommended. A sharp rise points to the presence of an Rh-positive fetus with likelihood of erythroblastosis, though cases have been reported of antibodies demonstrated during pregnancy followed by subsequent birth of healthy Rh-positive infants. This, however, is likely to be a rare exception.

1. Race, R. R.: An "Incomplete" Antibody in Human Serum, Nature **153**: 771 (June 24) 1944.
2. Wiener, A. S.: A New Test (Blocking Test) for Rh Sensitization, Proc. Soc. Exper. Biol. & Med. **56**: 173 (June) 1944.
3. Diamond, L. K., and Abelson, Neva M.: The Demonstration of Anti-Rh Agglutinins: An Accurate and Rapid Slide Test, J. Lab. & Clin. Med. **30**: 204 (March) 1945.
4. Wiener, A. S.: Conglutination Test for Rh Sensitization, J. Lab. & Clin. Med. **30**: 662 (Aug.) 1945.
5. Diamond, Louis K., and Abelson, Neva M.: The Detection of Rh Sensitization: Evaluation of Tests for Rh Antibodies, J. Lab. & Clin. Med. **30**: 668 (Aug.) 1945.
6. Coombs, R. R. A.; Mourant, A. E., and Race, R. R.: A New Test for the Detection of Weak and Incomplete Rh Agglutinins, Brit. J. Exper. Path. **26**: 255 (Aug.) 1945.

It has been suggested that agglutinins in the serum of a pregnant woman have a different prognostic significance than the so-called blocking antibodies [7] in the sense that the former are more frequently followed by severe icterus and the latter by hydrops or severe anemia. The evidence indicates that while this may be true in a series of cases treated statistically there are too many exceptions to permit practical application to individual cases.

There is little to recommend cesarean section as a means of saving babies with erythroblastosis. Too many disappointments have been experienced. The handicap of prematurity is rarely outweighed by the alleged shortening of exposure to the damaging action of maternal Rh antibodies. The crux seems to be our inability thus far to recognize with certainty the severity of the disease in the baby by the examination of the mother's blood. Possibly further study and especially critical correlation of quantitative and qualitative antibody values with the condition of the infants at birth will teach us to formulate more reliable indications for early termination of pregnancy.

BCG IMMUNIZATION

The results of the use of the BCG vaccine in man are influenced by so many factors that accurate evaluation is still difficult. All reports agree that the vaccine properly prepared and used is harmless, as cases of tuberculosis caused by BCG vaccine have not been reported thus far. In some cases in which vaccinated children developed and died of tuberculosis, the bacilli from the pleural exudate, cerebrospinal fluid and lungs were of the human and not the bovine type. Holm [1] of Denmark states that since 1940 vaccination with the bacillus of Calmette-Guérin has been adopted in that country as an essential weapon in the fight against tuberculosis. A large part of the young people of Denmark are tuberculin negative. Since it is known that tuberculin negative persons acquire tuberculosis much more readily when exposed, BCG vaccination is believed to be a valuable adjunct in the control of tuberculosis. Extensive examinations for tuberculosis carried out in recent years utilizing identical technic (the Mantoux test), the same tuberculin dosage and even the same tuberculin dilutions have furnished a large amount of data on the extent of tuberculous infection in the Danish population. About two thirds of the population in Denmark at the age of 14 years gives a negative tuberculin reaction, and at the ages between 20 to 23 years one third of the population still gives a negative reaction. The vaccination renders by far the greater majority of vaccinated persons tuberculin positive. The duration of the reactivity is at least four years after the vaccination for the majority of the vaccinated persons. In Denmark BCG vaccination has been employed chiefly in tuberculous environments. All children with a negative reaction in a tuberculous environment have been vaccinated, also the newborn, and on development of a positive reaction they have been permitted to remain in their environment. This appears to be a severe test for the vaccination. However, the Tuberculosis Dispensary of Copenhagen reports that morbidity and mortality from tuberculosis among the children in a tuberculous environment have been reduced following vaccination to almost zero. Previously mortality among children exposed to tuberculosis in their homes was high, but in recent years children thus exposed have not died of tuberculosis, and children who become ill have a much milder form of tuberculosis than previously observed. Holm concludes that BCG vaccination gives considerable, although not absolute, protection. It protects almost completely against the morbid phenomena of the tuberculous primary infection, and it also affords considerable protection against genuine tuberculosis of the various organs, in particular against pulmonary tuberculosis.

Hertzberg [2] states that in Norway all children born in a tuberculous environment are vaccinated with BCG vaccine and an attempt is made to keep them isolated from the tuberculous members of the family until they become tuberculin positive. The allergy produced by the vaccination lasts more than three or four years. In the health department of Bergen, among 4,400 persons vaccinated who were observed up to three years only 1 developed ulcerative pulmonary tuberculosis and 11 developed tuberculosis of the hilar lymph nodes. The National Society Against Tuberculosis in Norway favored mass vaccination in 1945. Vaccination of persons living in a tuberculous environment, student nurses and others working in tuberculosis institutions, students in the graduating classes of the common schools, students and recruits seemed particularly desired.

Levine and Sackett,[3] reporting the results of BCG immunization in New York City, assume a more conservative attitude. Although most reports have been optimistic, they feel that the vast majority of these studies have been inadequately controlled. The Bureau of Laboratories of the New York City Department of Health undertook in 1926 a study of the efficacy of the BCG vaccine. The children vaccinated were referred from tuberculosis clinics and hospitals in New York City. They were all from tuberculous families and, with rare exceptions, were placed under observa-

7. Wiener, A. S., and Brody, M.: Pathogenesis of Kernicterus, Science **103**: 570 (May 3) 1946.

1. Holm, J.: BCG Vaccination in Denmark, Pub. Health Rep. **61**: 1293 (Sept. 6) 1946.

2. Hertzberg, G.: BCG-situasjonen i Norge, Nord. med. **30**: 1237 (June 7) 1946.

3. Levine, M. I., and Sackett, Margaret F.: Results of BCG Immunization in New York City, Am. Rev. Tuberc. **53**: 517 (June) 1946.

tion before they were 12 months of age, many of them during the first four weeks of life. Children were not accepted for study after 1 month of age unless tuberculin tests up to 1.0 mg., roentgenograms and physical examinations were negative. In the first two years of the study the vaccine was given orally during the first ten days of life. By this method approximateiy 50 per cent developed positive tuberculin reactions. Thereafter the parenteral method of vaccination was used; it resulted in approximately 85 per cent of positive reactors. Up to Jan. 1, 1944, 2,084 children from tuberculous homes in New York City have been followed, of whom 1,011 were vaccinated and 1,073 held as controls. Up to 1933, 990 children were studied, 445 of whom were vaccinated. In this series the children were divided into two equal groups, those to be vaccinated and those serving as controls. A physician was assigned to a number of cases and was told to vaccinate half of the group. Subsequent experience has shown that by this method of selection the tendency was to inoculate the children of the more intelligent and cooperative parents and to keep the children of the noncooperative parents as controls. This was probably the source of considerable error, as the cooperative parents not only will take more careful precautions but will bring the child more regularly to the clinic for child care and feeding. In this series the tuberculosis mortality of the controls was over four times that of the vaccinated groups (3.38 per cent as against 0.68 per cent). In a second series the procedure of selection was changed in 1933 so that alternate children were routinely vaccinated, the remainder serving as controls. Mortality figures for the two groups in this series were essentially similar, the tuberculosis mortality of the vaccinated cases being 1.41 per cent as against 1.51 per cent for the controls. The authors point to a number of factors which could affect the comparative results, such as parental cooperation, economic conditions, racial distribution, exposure, lost cases and percentage of necropsies. Routine separation of children for three months before and three months after BCG vaccination to eliminate the hazard of continuous contamination with human bacilli was not found to be a feasible or safe procedure, although a small group where such separation was possible (91 vaccinated and 96 control cases) indicated that the BCG inoculation might be of protective value were such separation practical.

The efficacy of BCG vaccination must be judged by its ability to reduce the tuberculosis mortality of children vaccinated in their homes in the midst of a tuberculous environment. The authors conclude that as a public health measure the routine vaccination with BCG of children from tuberculous homes is less advantageous than removal of the tuberculous subject from the home.

THIAMINE UTILIZATION AND LIVE YEAST

Yeast has been regarded for many years as a substance supplying numerous valuable nutrients to the living organism. Modern studies by nutritionists have confirmed this general thesis but have shown that there is at least one exception, namely thiamine utilization when live bakers' yeast is included in the human dietary. Experimental studies have indicated [1] that thiamine utilization is poor when live bakers' yeast is included in the diet. This seeming paradox was first convincingly demonstrated in human subjects last year by a group of investigators at the University of Wisconsin.[2] These workers found, contrary to what might have been expected, that the incorporation of either of two types of live bakers' yeast (8 to 50 Gm., or approximately one to four cakes daily) in a normal human dietary resulted in an increased excretion of thiamine in the feces and a decrease in the urinary thiamine to subnormal levels. The use of a "high vitamin" type of bakers' yeast resulted in an even greater fecal loss of thiamine. Boiling the yeast preparation lessened the fecal loss, thus indicating that the impairment of thiamine absorption was due to the use of live yeast cells.

The observations mentioned were soon confirmed by studies on rats [3] in which the growth response was used as an index to thiamine utilization from live yeast and by other studies on normal human subjects.[4] The latter experiments indicated that only 17 per cent of the total thiamine present in the live yeast is available. The decreased absorption of thiamine from the gastrointestinal tract was attributed to thiamine removal and phosphorylation by the live yeast cell for its own metabolic purposes. Laxation is apparently not a decisive factor.[2] Current studies by the Wisconsin group [5] have further confirmed and extended the problem. Five young college women were fed a diet rich in thiamine to which for certain experimental periods live bakers' yeast (15 to 150 Gm. daily) was added. As before, the fecal loss of thiamine was definitely increased while the urinary thiamine level decreased to values "within the range accepted as denoting considerable to severe deficiency."

The practical implications of these scientific studies is obvious. Live bakers' yeast cannot longer be regarded as a satisfactory source of thiamine for human subjects; in fact the reverse is the case. Perhaps the comment should be added, however, that bakers' yeast cells killed

1. Walker, R., and Nelson, E. M.: Am. J. Physiol. **103:** 25 (Jan.) 1933.
2. Parsons, Helen T.; Williamson, Anne, and Johnson, Mary L.: J. Nutrition **29:** 373 (June) 1945.
3. Parsons, Helen T.; Foeste, Audrey, and Gilberg, Helen: J. Nutrition **29:** 383 (June) 1945.
4. Hochberg, Melvin; Melnick, Daniel, and Oser, Bernard L.: J. Nutrition **30:** 201 (Sept.) 1945.
5. Ness, Helen T.; Price, Echo L., and Parsons, Helen T.: Science **103:** 198 (Feb.) 1946.

(by heat) appear to be a good source of thiamine and, of course, that dried brewers' yeast, which has been used with success therapeutically for a number of years, is an excellent source of thiamine as well as other B vitamins.

Current Comment

WINSTON-SALEM EMPLOYS TRANSCRIPTIONS EFFECTIVELY

An example shows how electrically transcribed programs such as those furnished by the American Medical Association can be promoted with great effectiveness by ingenious local cooperation. At Winston-Salem, N. C., the transcribed series "Before the Doctor Comes" was used with the cooperation of the city health department, the Forsyth Medical Society, the Bowman Gray School of Medicine and the Forsyth Health Committee with the Community Radio Council and Station WSJS. After the broadcasts had been planned, announcements were sent throughout the community on mimeographed dodgers, and publicity was arranged through local newspapers, daily and weekly, and other publications reaching various groups of people. The transcribed programs played ten minutes, leaving approximately three minutes for local participation. This was supplied by "live" broadcasts made by physicians and other community leaders, including the health officer and the health educator. Thus a fully rounded fifteen minute program was produced, and the local interest and usefulness of the transcriptions were enhanced by the supplementary material provided, which had a distinctly local flavor. Also it was possible to offer booklets and other material pertinent to the topic and thus encourage listeners to write in. The success of this program called forth a letter from the radio station expressing satisfaction with the results of the broadcasts and offering its full cooperation for future projects.

SKIN DISEASES AND VITAMIN A

Much effort has been devoted recently to studying the possible connection between certain skin diseases and the levels of vitamin A in the blood plasma. Two British investigators [1] determined the plasma vitamin A levels in 116 dermatologic patients and compared them with 116 control patients. A mean value of 116 international units of plasma was found in patients with skin disease, and this was virtually identical with the mean value of 113 international units found in the controls. Some support was found for the theory that secondary deficiency of vitamin A might be of some significance in a few rare skin diseases. In 6 cases of Darier's disease, 2 of pityriasis rubra pilaris and 3 of ichthyosis the mean level of vitamin A in the plasma was 77 international units. In patients with Darier's disease and pityriasis rubra pilaris the administration of large doses of vitamin A concentrate resulted in an eventual plasma vitamin A level considerably above normal values. In 2 of the patients with Darier's disease the skin became normal or nearly so after treatment with vitamin A and grenz rays. The other patients with Darier's disease showed less improvement, and in 1 the lesions remained unchanged even when the vitamin A levels in the plasma reached high levels. Two of the patients with pityriasis rubra pilaris showed some, but incomplete, improvement of the skin when the plasma vitamin A levels reached normal or higher than normal levels. It would seem from these and other studies that the relation between the amounts of vitamin A in the blood plasma and the appearance of the skin lesions in several rare dermatologic conditions might be of significance, though in the vast majority of skin diseases there is little or no direct relationship.

1. Leitner, Z. A., and Moore, T.: Vitamin A and Skin Diseases, Lancet **2**: 262 (Aug. 24) 1946.

PROLONGED EXPOSURE TO SIMULATED HIGH ALTITUDES

Recently D'Angelo [1] reported studies on the respiratory metabolism of 6 healthy men subjected to prolonged exposure at simulated altitudes of 8,000 to 10,000 feet. The men were kept in the low pressure chamber for ten hours without supplementary oxygen and under standardized conditions and restricted food intake. The respiration was increased under the conditions of the study. This involved an increase in depth rather than in rate of breathing and was believed to indicate a respiratory alkalosis. The physiologic effects included an increase in the minute volume and carbon dioxide elimination, elevation of the respiratory quotient and a shifting of the urinary p_H toward alkalinity in all those who displayed appreciable hyperventilation. Furthermore, various behavior changes, notably somnolence, irritability, inattention, lack of volition and fatigue, were observed. D'Angelo suggests that serious consideration ought to be given toward putting a high altitude limit on prolonged flights without supplementary oxygen. He also suggests that the use of extra oxygen at altitudes as low as 8,000 feet may be advisable. The curious feature of this study is the comparatively low altitude at which supplementary oxygen would seem to be indicated. Many people live permanently at altitudes of close to 8,000 feet (and even above) without apparent harmful mental or physiologic effects. Consequently a number of pertinent questions arise. Are permanent residents of high altitude areas affected more than has so far been realized? Does the speed of rise to 8,000 or 10,000 feet as employed in D'Angelo's studies influence the effects of the high altitude more than would a more gradual rise and lengthy acclimatization? Although remaining at 8,000 to 10,000 feet for ten hours is called "prolonged" by D'Angelo, is it likely that the exposure is too short in which to bring about the physiologic adjustments which can be obtained by longer exposures? These and other readily propounded questions serve to illustrate the deficiencies still remaining concerning knowledge of the effects of altitude on the human body.

1. D'Angelo, Savino A.: The Respiratory Metabolism of Human Subjects During Prolonged Exposure to Simulated Altitudes of 8,000 and 10,000 Feet, Am. J. Physiol. **146**: 170 (Aug.) 1946.

ORGANIZATION SECTION

Official Notes

RESOLUTIONS TO BE PRESENTED TO HOUSE OF DELEGATES

NOTE.—These resolutions are published in accordance with a request of the House of Delegates to the effect that resolutions to be presented before the House of Delegates be published thirty days before the House of Delegates is to convene in session.

The following resolutions will be submitted by the delegates of the Colorado State Medical Society:

Resolution on Prohibition of Political Activity on Part of the United States Public Health Service

WHEREAS, The United States Public Health Service was created, organized and is amply financed for certain specific purposes, namely the promotion of the public health, the prevention of disease, the control of epidemics and the extension of help and advice to state and local communities in these and similar problems of disease prevention; and

WHEREAS, The United States Public Health Service in wartime has certain additional duties and functions related to the armed forces in assisting them in protection of the nation and its citizens; and

WHEREAS, Existing federal laws contemplate that regular officers of the United States Public Health Service shall devote their full time to the aforementioned duties; and

WHEREAS, Certain officers and members of the United States Public Health Service, including its Surgeon General, have within the last year so put aside consideration of the functions and duties for which they were appointed and commissioned as to devote much of their time and energy to political activities, even to the extent that the Surgeon General of that service has issued written orders to his staff and his officers directing their utterances and thinking on highly controversial questions of medical legislation wholly unrelated to the proper functions of the United States Public Health Service and in opposition to American democratic processes; now therefore be it

Resolved, That the House of Delegates of the American Medical Association condemns without qualification, as a perversion of function and dereliction of duty, political and partisan activities on the part of officers of the United States Public Health Service, including its Surgeon General, and recommends that steps be taken to prohibit political activity on the part of the United States Public Health Service, and that further steps be taken to restore the prestige of this important department of our government in the scientific field for which it was created, organized and financed.

Resolution on Change of Policy of American Specialty Boards

WHEREAS, Certain of the American specialty boards have recently announced discontinuance of their former practice of according credit for preceptorships with a certified diplomate, and have ruled instead that every applicant for certification must serve a lengthy residency following his internship; and

WHEREAS, This recent change in policy constitutes an unfair imposition on many returned medical veterans and other young physicians who find it impossible to obtain such residencies; and

WHEREAS, It is the opinion of the American Medical Association that the preceptorship is one of the best methods of teaching the art of medicine; and

WHEREAS, Qualified and experienced preceptors already certified by these boards are available in all parts of the United States; and

WHEREAS, The art of medicine is frequently neglected in hospital residencies owing to overemphasis on the science of medicine; now therefore be it

Resolved, That the House of Delegates of the American Medical Association requests the Advisory Board for Medical Specialties and the several American specialty boards to review and reconsider their policies in relation to residencies and preceptorships in accordance with the foregoing statements.

Resolution on Appointment of Reference Committees

WHEREAS, The By-Laws of the American Medical Association contemplate the appointment of House of Delegates' reference committees from the membership of the House of Delegates; and

WHEREAS, The duty of reference committees to pass judgment on the activities of elected and appointed officers makes it obviously improper for these committees to be composed of the persons whose actions they are expected to judge; and

WHEREAS, In recent years the Board of Trustees of the American Medical Association has acted as a reference committee of the American Medical Association House of Delegates to pass judgment for the House of Delegates on actions previously taken by the Board of Trustees; and

WHEREAS, Official protest of this action has been received from the Colorado State Medical Society; now therefore be it

Resolved, That the House of Delegates of the American Medical Association instruct its speaker to utilize as reference committees of this House of Delegates only committees composed exclusively of elected Delegates.

THE ATLANTIC CITY SESSION

Representatives of Various Sections to the Scientific Exhibit

Representatives to the Scientific Exhibit have been appointed by each section of the Scientific Assembly to assist and advise in securing exhibits for the Atlantic City session, June 9-13, 1947. Their names and addresses follow:

Internal Medicine—Dr. Thomas C. Garrett, 3803 Oak Road, Germantown, Philadelphia.
Surgery, General and Abdominal—Dr. Warren H. Cole, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.
Obstetrics and Gynecology—Dr. Frederick H. Falls, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.
Ophthalmology—Committee on Scientific Exhibit, Dr. Georgiana D. Theobald, 120 Medical Arts Building, Oak Park, Ill., chairman; Dr. Derrick Vail, 55 East Washington Street, Chicago 2, and Dr. A. B. Reese, 73 East Seventy-First Street, New York 21.
Laryngology, Otology and Rhinology—Dr. Paul H. Holinger, 700 North Michigan Avenue, Chicago 11.
Pediatrics—Dr. Albert V. Stoesser, 412 Delaware Street S.E., Minneapolis.
Experimental Medicine and Therapeutics—Dr. Robert W. Wilkins, Evans Memorial Hospital, 65 East Newton Street, Boston.
Pathology and Physiology—Dr. F. W. Konzelmann, Atlantic City Hospital, Atlantic City, N. J.
Nervous and Mental Diseases—Dr. A. B. Baker, University of Minnesota Medical School, Minneapolis.
Dermatology and Syphilology—Dr. Francis W. Lynch, 350 St. Peter Street, St. Paul.
Preventive and Industrial Medicine and Public Health—Dr. Paul A. Davis, 1436 Delia Avenue, Akron 2, Ohio.
Urology—R. John H. Morrissey, 40 East Sixty-First Street, New York.
Orthopedic Surgery—Dr. David M. Bosworth, 742 Park Avenue, New York 21.
Gastro-Enterology and Proctology—Dr. Donovan C. Browne, 1534 Aline Street, New Orleans.
Radiology—Dr. S. W. Donaldson, 326 North Ingalls Street, Ann Arbor, Mich.
Anesthesiology—Dr. Urban H. Eversole, 605 Commonwealth Avenue, Boston.
General Practice of Medicine—Dr. J. Craig Bowman, 208 South Sandusky Avenue, Upper Sandusky, Ohio.

Application blanks for space may be obtained from any of the section representatives or from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10.

Council on Medical Service

PREPAYMENT MEDICAL CARE PLANS

The Hospitalization and Health Center Program

The medical profession together with hospital and farm organizations worked for the enactment of this legislation. Announcement was made in THE JOURNAL, September 21, page 155, in regard to the formation of the Federal Hospital Council and the Advisory Committee "to assist Surgeon General Thomas Parran of the U. S. Public Health Service in the administration of the hospital survey and construction act." It has been pointed out that the membership of the Federal Hospital Council, composed of eight persons, does not include a farm representative or an official representative from the American Medical Association or the American Hospital Association. One physician, Dr. Robert C. Buerki, dean of the Graduate School of Medicine, University of Pennsylvania, is on the Council. Of special interest to the medical profession is the fact that Michael Davis is a member of this council as a representative of "the consumers of medical service."

THE ADVISORY COMMITTEE

The American Medical Association is represented on the Advisory Committee by Dr. Franklin S. Crockett, chairman, Committee on Rural Medical Service of the American Medical Association, of Lafayette, Ind., and Dr. Victor Johnson, secretary, Council on Medical Education and Hospitals, of the American Medical Association.

The Advisory Committee, composed of some twenty-four men, should not be mere window dressing; from the reports of the first meetings of this group held September 17 and 18 in Washington it is evident that the committee will play an important part in any plans and program which are set up by the Surgeon General and the Federal Hospital Council.

RESPONSIBILITY OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association through its Board of Trustees, the Councils on Medical Service and Medical Education and Hospitals and the Bureau of Legal Medicine and Legislation will keep in touch with developments that occur. Some work should be done promptly to set forth the conditions under which the medical profession may best cooperate in the implementation of the provisions of the Hill-Burton bill. The Council on Medical Service and the Council on Medical Education and Hospitals have been asked by the Board of Trustees to draw up minimal standards for state societies to utilize in assisting in carrying out the provisions of the Hill-Burton bill.

"Make no mistake, the local people must watch every factor to see that those administering the program at the national, state and local levels do not take control of the situation and thereby defeat the purpose of Congress and the Hill-Burton legislation" says Ransom E. Aldrich, chairman, American Medical Care Committee, Farm Bureau Federation, Jackson, Miss.

PREPAYMENT

The "Seal of Acceptance."—To date, twenty-seven voluntary prepayment medical care plans have been awarded the Council's "Seal of Acceptance." They are:

California Physicians' Service, San Francisco.
Iowa Medical Service, Des Moines.
Michigan Medical Service, Detroit.
Surgical Care, Inc., Kansas City, Mo.
Nebraska Medical Service, Omaha.
Medical-Surgical Plan of New Jersey, Newark.
Ohio Medical Indemnity, Inc., Columbus.
Medical Service Association of Pennsylvania, Harrisburg.
Oregon Physicians Service, Salem.
Physicians Association of Clackamas County, Oregon City, Ore.
Hospital Service Corporation, Birmingham, Ala.
Florida Medical Service Corporation, Jacksonville, Fla.
North Idaho Medical Service Bureau, Lewiston, Idaho.
Genesee Valley Medical Care, Rochester, N. Y.
Hospital Saving Association of North Carolina, Chapel Hill.
Oklahoma Physicians Service, Tulsa.
Coos Bay Hospital Association, Coos Bay, Ore.
Pacific Hospital Association, Eugene, Ore.
Klamath Medical Service Bureau, Klamath Falls, Ore.
Group Medical and Surgical Service, Dallas, Texas.
The Dallas County Medical Plan, Dallas, Texas.
Surgical Care, Inc., Roanoke, Va.
Medical-Surgical Service, Inc., Clarksburg, W. Va.
Marion County Medical Service, Inc., Fairmont, W. Va.
Medical-Surgical Care, Inc., Parkersburg, W. Va.
West Virginia Medical Service, Wheeling.
Hospital Service of California, Oakland.

Other applications have been received and will be acted on at the next meeting of the Council.

Eighty-Four Plans.—Up to the present time the Council has found eighty-four voluntary prepayment medical care plans in operation. Each of these offers a free choice of physician and is sponsored by either the medical profession, the Blue Cross or both. These plans are spread over thirty-two states, the territory of Hawaii and Puerto Rico. In addition some thirteen states and the District of Columbia are in various stages of plan development. Only three states are without a plan or program.

Three and One-Half to Four Million.—Enrolment reports from most plans show general and encouraging growth for the first six months of this year. The total enrolment as of June 30, with a half dozen plans yet to report their figures, was 3,435,885. Six plans showed an increase of over 100 per cent, and sixteen an increase of over 50 per cent. Many plans reporting each month have shown a constant increase in enrolment since June 30.

District of Columbia.—"Medical Service of the District of Columbia" has been completed to offer a prepayment plan in the Capital. Twenty incorporators have been selected. The plan will be a "service plan" for single persons earning $2,500 and for families with a $4,500 income per year. The scheduled monthly dues are 75 cents for the individual, $1.50 for a man and wife and $1.75 for a family.

Montana Physicians' Service.—One of the increasing number of new plans to commence operation has announced that enrolment started as of August 1. Over 70 per cent of the members of the Montana Medical Association are participating physicians. In the first two months over 5,000 subscribers have joined the plan. Congratulations, Montana!

Illinois Prepayment Program.—The Illinois State Medical Society has struggled hard and long to evolve a prepayment medical care plan. The house of delegates approved a plan several months ago, but several amendments adopted at the last minute have held up progress. A recent communication from Dr. Harold Camp, society secretary, indicates that the serious difficulties have been ironed out. A special meeting of the house of delegates has given the go-ahead signal.

Maryland.—A joint committee of the Chirurgical Faculty and Associated Hospital Service of Baltimore drafted a program in May. The program called for a separate corporation to be administered by Associated Hospital Service. No further developments have been reported to the Council.

Idaho.—The North Idaho Medical Service Bureau of Lewiston, Idaho, has been formed to provide a prepayment program for the northern part of the state. As of June 30 the enrolment was 2,227. The State Committee on Prepaid Medical Care has recommended that a statewide plan be deferred for the present, awaiting the experience in northern Idaho.

South Carolina.—South Carolina, one of the few states without a prepayment plan, may have something started next spring. Mr. Meadors, director of public relations, suggested in the May issue of the *South Carolina Medical Association Journal* that enabling legislation be proposed at the January 1947 session of the South Carolina general assembly.

Maine.—The house of delegates of the Maine Medical Association has authorized the Committee on Prepaid Medical Care Plans to take the necessary steps to secure an enabling act "which would empower the Maine Medical Association to adopt a representative insurance plan when such can be formulated."

Rural Enrolment.—Surgical Care, Inc., of Kansas City, Mo., reports very encouraging activities in rural enrolment. The plan started a rural enrolment program in the late fall of 1945 and by August of this year had 3,500 subscribers in the service. Enrolment has proceeded through the Missouri Farm Federation and community groups.

Prepayment Plan Not Insurance.—The California State Supreme Court has ruled that the state insurance commissioner has no jurisdiction over California Physicians' Service. This ruling ends some seven years of litigation and indicates that California Physicians' Service is not an insurance plan within the meaning of the California laws.

Tennessee.—The prepayment committee in Tennessee has been requested by the house of delegates to proceed with drawing up a complete service plan outline including constitution, by-laws and proposed contracts. At the same time the committee is to study the facilities of private insurance carriers and their willingness to underwrite a plan.

Wyoming.—An interesting article in the *Rocky Mountain Medical Journal* reveals that the Public Policy and Legislative Committee of the Wyoming State Medical Society has discussed plans for the inauguration of a Prepayment Medical Plan for Wyoming. Some desire has been expressed to determine the advisability of associating any developed plan with Wyoming Hospital Service and combining under one administrative agency both medical and hospital coverage. Also considered was the advisability of combining any resulting organization with Colorado Medical Service. No further developments have been reported.

Minnesota.—The Minnesota subcommittee working on contracts and rates met October 6 in St. Paul. Two types of contracts are being considered at this time. One contract will cover surgical and obstetric procedures, while the other will include surgical and obstetric procedure with certain medical benefits added. It is reported that 75 per cent of the recommended starting capital of $100,000 has already been obtained.

Arkansas.—The Prepayment Committee for the State of Arkansas has been discussing the best means of developing a prepayment plan. At the latest report a definite decision had not been reached as to whether to develop a service plan to be underwritten by the doctors or to have the plan handled through private insurance.

Connecticut.—The *Connecticut State Medical Journal* reported in June that negotiations with a private insurance company had been discarded in favor of a plan to be promoted and sold by the Blue Cross Hospital Plan. Recent reports, however, seem to indicate that this original decision may be altered in favor of a private insurance underwritten program.

Arizona.—The house of delegates of the Arizona State Medical Association approved a medical service plan for the people of the state of Arizona. The plan provides for surgical and obstetric care for group insured hospital patients. It also provides care for fractures both in and out of the hospital. The service covers the employee and his family and unmarried dependents under 19 years of age.

Ohio.—Ohio Medical Indemnity, which began operations in January of this year, reports that on August 1 its enrolment was 39,459.

Health Service Association, Detroit.—The organization of a new corporation, Health Service Association, has been granted a preliminary certificate by the Commissioner of Insurance for the State of Michigan, according to recent reports. It has been indicated that this action was necessitated as a result of disagreements with certain policies of Michigan Hospital Service. These policies have resulted in several hospitals operated by the Catholic Sisters of Mercy to withdraw from participation in Michigan's Blue Cross Plan. This withdrawal has left certain Michigan cities without any hospital participating with the statewide program.

The incorporators of the new association (actively identified with Michigan Medical Service, the statewide medical care plan sponsored by the state medical society) are reported to feel this action necessary to enable Michigan Medical Service to offer a more complete health protection service in areas not serviced by Blue Cross.

Four Plans Over 200,000.—The four leaders in number enrolled as of June 30 are Michigan Medical Service, 847,881; California Physicians' Service, over 337,000; Massachusetts Medical Service, 275,000, and United Medical Service, 274,861. The average increase in enrolment for plans in the 200,000 to 500,000 group was 55 per cent.

Eleven Plans Between 50,000 and 200,000.—There are eleven plans showing June 30 enrolment between 50,000 and 200,000. In order of size these are Hospital Saving Association of North Carolina; Colorado Medical Service; Surgical Care, Inc., Kansas City, Mo.; Hospital Service of California; Group Hospital Service of Delaware; Western New York Medical Plan, Inc.; Hospital Care Association, Inc., North Carolina; Medical-Surgical Plan of New Jersey; Medical-Surgical Care, New York; Oregon Physicians Service, and Medical Service Association, Inc., North Carolina.

Increase in Enrolment of 362 per Cent.—The largest percentage increase in enrolment for the first six months of this year was 362 per cent. This fine increase was experienced by Oklahoma Physicians Service of Tulsa.

Regional Meetings with Plan Executives.—Executives of the various plans were recently canvassed to secure their reaction to a series of regional meetings. In this way it was thought that the Council staff could become better acquainted with the plan managers and their problems. This would be accomplished with a minimum of inconvenience to the busy executives. As far as expediency will permit, such meetings will be coordinated with other scheduled meetings in given areas. To date the plan executives are overwhelmingly in favor of the idea, with only a few plans not yet expressing their opinions.

Associated Medical Care Plans.—The auditorium in the American Medical Association headquarters was lent to A. M. C. P. for its first annual meeting held in Chicago on October 4 and 5. Dr. L. Howard Schriver, Cincinnati, was elected as the new president, and the remaining officers were reelected. They are William Bowman, C.P.S., vice president; Dr. Norman Scott, Newark, N. D., treasurer, and Jay C. Ketchum, Detroit, secretary.

Any medical care plan organization which meets and complies with the minimum standards for medical care plans approved by the Council on Medical Service of the American Medical Association shall, on approval of its application by the Commission (A. M. C. P.) be a full member.

It has been reported to the Council that fourteen plans have been admitted to full membership, with two plans admitted as associate members.

First Joint Conference of Insurance-Medical Committees.—Some time ago the Board of Trustees of the American Medical Association authorized a committee to meet with representatives of leading insurance associations. On September 18 representatives of the leading insurance associations of the United States met with the A. M. A. committee with a view of combining efforts toward solution of common problems.

As a result of the conference two committees were appointed, a committee on cooperation and a committee on rural enrolment. The purpose of the first is to further the close cooperation among all voluntary facilities for rendering health protection, and the second committee is to study the best means of affording protection offered by the combined voluntary facilities to those in rural areas.

It is hoped that much will be accomplished as a result of this conference and the work of the two committees.

STATE AND COUNTY MEDICAL SOCIETY ACTIVITIES

Virginia.—A recently published (July 1946) pamphlet of the Virginia Council on Health and Medical Care should be of interest to all state medical societies. It outlines the purposes, plans and program to date. For copies write to Miss Ellen H. Smith, 4050 Forest Hill Avenue, Richmond, Va.

New York.—If any of the state society officers are interested in material on antivivisection it might be well to get in touch with the New York Academy of Medicine or the New York State Medical Society. The medical profession in New York State has gone through a long legislative campaign on this subject and has prepared a number of excellent articles showing the need of animal experimentation.

Massachusetts.—Lowell has instituted a program of public education via advertising. This may be a new avenue to accomplish an important purpose.

Indiana.—Lake County Medical Society has entered into a new public educational project. It is a health bulletin, to be issued monthly, entitled "The Ounce of Prevention." A cooperated effort of private health agencies and the medical society, the bulletin will go to some 4,000 teachers, public health workers and industrial officials. Eventually it is hoped that distribution can be made to the 68,000 students in Lake County schools. The National Foundation of Infantile Paralysis, the Tuberculosis Association and the American Cancer Society each contributed $1,000 to the project.

Oklahoma.—Dick Graham of Oklahoma has a new associate in his capacity as executive secretary of the Oklahoma State Medical Association. He is Clayton Fondren, graduate of the University of Oklahoma and recently returned from four years with the Army Air Forces.

North Dakota.—Another newcomer to the lay secretary field is E. F. Engebretson, executive secretary of the North Dakota State Medical Association.

Massachusetts.—The Council of Massachusetts has voted to employ a director of medical information and education. It will be a full time position, probably similar to that of the executive secretary in other state societies.

Tennessee.—The Tennessee State Medical Association, in cooperation with the local medical societies, has been carrying on a series of health broadcasts. The programs are by electrical transcription, many of which are available through the A. M. A. Bureau of Health Education. They are fifteen minute programs and cover a wide variety of subjects.

Washington Letter

(From a Special Correspondent)

Nov. 4, 1946.

Appointment of Atomic Energy Commisson Presages. Establishment of Medical Atomic Laboratory

Following appointment of the five man Atomic Energy Commission, of which David Lilienthal is the head, Dr. Edward U. Condon and Dr. R. E. Dyer, directors respectively of the U. S. Bureau of Standards and the National Health Institute, said they will present preliminary plans to the commission for construction of a 10 to 20 million dollar atomic laboratory in Bethesda, Md. It will be virtually built around several tons of uranium. At least two basic lines of research will be followed. The Bureau of Standards will investigate measurement of and standardization of atomic materials. The National Institute of Health will work alongside the bureau, investigating radioactive isotopes of various drugs and medicines, particularly in diagnosis and treatment of cancer. The National Institute of Health will also study safety precautions for workers in atomic laboratories. Plans will permit the use of the atomic laboratory by other scientific bodies in the area. Dr. Condon said the uranium pile would be a source of neutrons, atomic particles, for the production of radioactive materials for study.

Dr. Muller Learns of Nobel Prize Award at Carnegie Foundation Conference

A telephone call from Sweden informed Dr. Hermann Joseph Muller, professor of zoology at Indiana University, during a conference of the Carnegie Foundation here that he had been awarded the Nobel prize for medicine and physiology. The award was for his work on heredity, through his discovery that mutations in the genes of living things can be changed through exposure to x-rays. Dr. Muller studied at Columbia University under the late Dr. Thomas Hunt Morgan, who won the prize in 1933 for his work in hereditary science. Dr. Muller is one of three scientists named to carry on a six year research program in genetics at Indiana University, for which the Rockefeller Foundation made a grant of $95,000. Last week the American Cancer Society made a grant of $4,500 to Dr. Muller to finance his work.

Socialized Medicine an Issue in Election Campaign

Coincident with the windup of the Congressional election campaign on November 5, socialized medicine became an issue in Maryland politics, with the Republican candidate for the Senate, Brig. Gen. John D. Markey, having asked Democratic Governor O'Conor to state his position on state medicine. The G. O. P. nominee in a statement challenged "Where does he stand on this important question, the attempt to socialize medicine? This state, the home of the greatest physicians, is vitally interested. Is Mr. O'Conor for or against? I am unequivocally against. The electorate is entitled to know where Mr. O'Conor stands, and he ought to speak up before November 5."

Dr. Walter A. Bloedorn Elected President of the Association of American Medical Colleges

Dr. Walter A. Bloedorn, dean of the George Washington Medical School, is the first Washington physician to be elected president of the Association of American Medical Colleges, which held its fifty-seventh annual meeting recently in Edgewater Park, Miss. He was also named association delegate to the national commission of the U. S. Educational, Scientific and Cultural Organization.

Scientists Plan to Visit Russia to Study KR Cancer "Cure"

A group of scientists from the National Cancer Institute and other cancer specialists may visit Moscow soon to study reports that a Russian preparation known as KR dissolves cancer in human beings without injuring the patient. Dr. V. V. Parin, secretary general of the Soviet Academy of Medical Sciences, revealed to a conference at the U. S. Public Health Service that a drug developed by Dr. Gregory Roskin and his wife, Dr. Nina Kleuva, from dead germs of Chagas disease (American trypanosomiasis) had produced "good results" in the treatment of cancer. Dr. Parin, who came here at the invitation of Surg. Gen. Thomas Parran of the U. S. Public Health Service warned that this did not mean that "the problem of cancer is solved." He said that at least five years must elapse before a cancer patient is cured. Fifteen Russian human "guinea pigs" were reported to have been "clinically cured" through use of the drug.

Dr. Parin, who is also professor of physiology at the Third Moscow Medical Institute and is in this country to inspect governmental and private research centers, spiked rumors that had been circulated that Russian medical scientists during the war transplanted limbs from cadavers to maimed persons. "Corneal transplants, yes; arms and legs, no" he said. Occasionally blood had been taken from corpses for transfusion, but only rarely, as it was much more practical to use living donors. In Washington he visited the National Institute of Health, National Cancer Institute, Naval Medical Research Institute and other research laboratories.

Weather Bureau to Give "Storm Warnings for Hay Fever and Asthma Sufferers"

Dr. W. C. Jacobs, Weather Bureau climatologist, reports that the agency is planning to set up a "storm warning system for hay fever and asthma sufferers" by which it will forecast twenty-four to forty-eight hours in advance the arrival of an air mass laden with ragweed pollen in a given area. The region having the greatest ragweed pollen intensity is southern Indiana. Air currents carry the pollen hundreds and even thousands of miles, and the climatologists plan to follow these pollen concentrations and map their courses.

Two Doctors Honored for Ninety-Seven Years of Service to Children

For their combined total of ninety-seven years of service to young patients at Children's Hospital here Dr. Joseph S. Wall, chairman, and Dr. Edgar P. Copeland, vice chairman, of the institution's medical staff, were honor guests at a "family party" at the hospital. They joined the staff as students, Dr. Wall in 1896 and Dr. Copeland in 1899.

Coming Medical Meetings

American Medical Association House of Delegates Supplemental Session, Chicago, Dec. 9-11. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Conference of State Secretaries and Editors, Chicago, Dec. 7-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, New York, Nov. 25-27. Dr. Karl D. Figley, 316 Michigan St., Toledo 2, Ohio, Secretary.

American Academy of Dermatology and Syphilology, Cleveland, Dec. 7-12. Dr. Earl D. Osborne, 471 Delaware Ave., Buffalo, N. Y., Secretary.

American Academy of Pediatrics, Pittsburgh, Nov. 13-16. Dr. C. G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American College of Surgeons, Cleveland, Dec. 16-20. Dr. Dallas B. Phemister, 40 E. Erie St., Chicago 11, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Nov. 14. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 1, Conn., Secretary.

American Public Health Association, Cleveland, Nov. 12-14. Dr. R. M. Atwater, 1790 Broadway, New York 19, Executive Secretary.

American Society of Anesthesiologists, New York, Dec. 12. Dr. Curtiss B. Hickcox, 745 Fifth Ave., Room 1503, New York, Secretary.

National Society for the Prevention of Blindness, New York, Nov. 25-27. Mrs. Eleanor Brown Merrill, 1790 Broadway, New York 19, Executive Director.

North Central Medical Conference, St. Paul, Nov. 10. Mr. R. R. Rosell, 493 Lowry Medical Arts Building, St. Paul, Secretary.

Post Graduate Medical Assembly of South Texas, Houston, Dec. 3-5. Dr. M. B. Stokes, 229 Medical Arts Bldg., Houston, Secretary.

Puerto Rico, Medical Association of, Santurce, Dec. 13-15. Dr. Rafael A. Vilar, P. O. Box 3866, Santurce, Secretary.

Radiological Society of North America, Chicago, Dec. 1-6. Dr. Donald S. Childs, 607 Medical Arts Bldg., Syracuse 2, N. Y., Secretary.

Society of Surgeons of New Jersey, Newark, Nov. 20. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

Southern Surgical Association, Hot Springs, Va., Dec. 10-12. Dr. Alfred Blalock, Johns Hopkins Hospital, Baltimore 5, Secretary.

Western Surgical Association, Memphis, Tenn., Dec. 5-7. Dr. Warren H. Cole, 1853 W. Polk St., Chicago 12, Secretary.

GOVERNMENT SERVICES

ARMY

ARMY AWARDS AND COMMENDATIONS

Colonel Samuel D. Avery

The War Department recently awarded the Legion of Merit to Col. Samuel D. Avery, M. C., U. S. Army, for his services from September 1939 to June 1946. During this time, says the citation, "the production of prophylactic vaccines and other products under his supervision increased to thirty times that of 1939. He maintained the effectiveness of typhoid vaccine to such a high degree that the incidence of typhoid and paratyphoid fevers in World War II was less than one-tenth that of World War I. Through his noteworthy efforts toward the prevention from the typhoid fevers, Colonel Avery made a major contribution to the war effort." Dr. Avery, a graduate of Rush Medical College, entered the service April 25, 1941.

Lieutenant Colonel Herbert S. Ripley

The War Department recently announced the award of the Bronze Star Medal to Lieut. Col. Herbert S. Ripley, M. C., O. R. C., Oak Park, Ill., for meritorious achievement in Biak, Netherlands East Indies, from Oct. 15, 1944 to Aug. 1, 1945 "in connection with military operations against the enemy. As chief of the neuropsychiatric section of a large general hospital," says the citation, "Lieutenant Colonel Ripley was responsible for the planning and organization of complete facilities for the care and treatment of psychotic cases. Despite difficult working conditions and acute shortage of experienced personnel, he succeeded through unselfish and diligent labor in providing an efficient service during a period in which large numbers of patients were being received from the Philippine Island campaigns. He devoted additional time to the instruction and training of other medical officers and supervised the establishment and operation of a convalescent and rehabilitation section which received high praise from medical authorities. As a result, many patients who ordinarily would have been evacuated to the United States were rehabilitated and returned to duty in the theater. By his superior professional ability, resourcefulness and devotion to duty Lieutenant Colonel Ripley made a distinguished contribution to the care of battle casualties in the Southwest Pacific area." Dr. Ripley, a graduate of Harvard Medical School, entered the service July 15, 1942.

Major John B. Bennett

The War Department recently awarded the Bronze Star Medal to Major John B. Bennett, M. C., A. U. S., Los Angeles. The citation stated that as adviser and instructor of the 31st and 51st Medical Battalions Major Bennett "performed meritorious service from December 1941 to April 1942 in Zambales and Bataan, Luzon, Philippine Islands. He constantly visited the field hospitals, collecting stations and battalion aid stations to assure judicious use of the small supplies of medicine and to supervise treatment of the sick and wounded. Through his initiative, excellent judgment and untiring efforts, Major Bennett did much to maintain the best possible health rate and combat effectiveness among the troops in two divisions." Dr. Bennett, a graduate of Baylor University College of Medicine, Dallas, Texas, entered the service Oct. 20, 1940.

VETERANS ADMINISTRATION

ASSIGNMENTS TO TUBERCULOSIS SERVICES

The Veterans Administration has announced the appointment of the following physicians on the tuberculosis services in various Veterans Administration hospitals:

Rodger J. B. Hibbard, Los Angeles, formerly superintendent and medical director, Utah State Tuberculosis Sanatorium. Dr. Hibbard is a specialist certified by the American Board of Internal Medicine.

Harry E. Walkup, Mount Hope, W. Va., formerly chief resident, surgical service, St. Joseph's Hospital, Baltimore.

Meyer Ralph Rosenbloom, Pittsburgh, formerly resident physician at the National Jewish Hospital, Denver, and at the Pennsylvania Tuberculosis Hospital, Cresson, Pa.

Harold H. Rosenbloom, Chicago, formerly associate attending physician in tuberculosis, Cook County Hospital.

Andrew George Goesl, Milwaukee, formerly with the tuberculosis control division, U. S. Public Health Service.

Peter John Galante, Klamath Falls, Ore., formerly assistant director, Henry Phipps Institute, Philadelphia.

Cecil L. Schultz, Philmont, N. Y., formerly medical director, Columbia Sanatorium at Philmont.

Max Baumwell, Belmont, Calif., formerly resident in tuberculosis, California Sanatorium, Belmont, Calif., Central Maine Sanatorium, Fairfield, and State Sanatorium, Booneville, Ark.

Morris C. Thomas, Arlington, Va., formerly resident staff physician, Sunnyside Sanatorium, Indianapolis, and at Essex Mountain Sanatorium, Verona, N. J.

George C. Wilson, Wallingford, Conn., formerly assistant superintendent, Connecticut State Tuberculosis Hospital, Norwich, and assistant in pathology at Yale University, New Haven, Conn.

S. M. Bittinger, Sanatorium, N. C., formerly associate superintendent and medical director of the West North Carolina Sanatorium, Black Mountain. Dr. Bittinger is a specialist certified by the American Board of Internal Medicine.

Frank Peter Ilasi, Brooklyn, formerly house physician, Oakland County Tuberculosis Sanatorium, Pontiac, Mich., and on the visiting staff, Post-Graduate Hospital, Chicago.

William G. Lewis, Winslow, Ariz., formerly physician in charge of the Indian Sanatorium at Albuquerque, N. M.

Andrew Nady, Calumet City, Ill., formerly tuberculosis control physician, state of Illinois, and assistant medical director, Tuberculosis Hospital, Oak Forest, Ill.

Harold Franklin Stolz, Saginaw, Mich., formerly with the Lovelace Clinic, Albuquerque, N. M., and on the staff of St. Joseph's Hospital and Presbyterian Hospital, Albuquerque.

Samuel Phillips, Sanator, S. D., formerly assistant medical director, Los Angeles Sanatorium, Duarte, Calif., and assistant medical director, South Dakota State Sanatorium.

John J. Ahern, Boston, formerly with the sanatorium division, Boston City Hospital, and assistant professor of medicine (tuberculosis), Tufts College Medical School.

PERSONALS

Dr. Roy R. Kracke, dean of Alabama Medical College at Birmingham, has been appointed to an advisory committee comprising eighteen physicians from throughout the United States to aid Gen. Omar Bradley, administrator of the Veterans Administration. The committee will meet four times a year.

Miss Dorothy V. Wheeler, executive secretary of the New York City Nursing Council, has been appointed director of nursing service in the Veterans Administration department of medicine and surgery. Miss Wheeler, a native of Missouri, obtained her R.N. from Washington University, St. Louis, in 1935 and her bachelor of science degree from Ohio State University in 1938.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Abrams, Maurice J.....Brewton
Cameron, John M.....Faunsdale
Childs, Edward A.....Montgomery
Emfinger, Orizaba.....S. Birmingham
Kern, Fred Jr.....Birmingham
Ray, Weldon A.....Tuscaloosa

Arizona

Friedlander, Saul.....Phoenix
Hata, Herbert T.....Arizona
Kettenbach, Edward L.....Tucson

Arkansas

Carpenter, Gray E.....Elaine
Clowney, Albert R.....Huttig
Denning, Philip P.....Levy
Hill, Harlan H.....England
Hipp, Harold R.....Batesville

Colorado

Beuchat, Eugene S.....Trinidad
Coppinger, William R.....Durango
Goodman, Nelson.....Denver
Hill, Kenneth A.....Denver

District of Columbia

Brotman, Alfred B.....Washington
Chapman, Ervin N.....Washington
Goumas, Marcus P.....Washington
Long, James W.....Washington
Reswick, Murray.....Washington

Florida

Appleyard, Arthur Jr.....St. Petersburg
Carter, Edward F. Jr.....Tampa
Cassel, Chester.....Miami
Gatling, Willard R.....Orlando

Georgia

Adams, Guy H.....East Point
Banks, Rafe Jr.....Gainsville
Bryans, Charles I. Jr.....Augusta
Clements, Fred N.....Adel
Davis, Albert M.....Atlanta
Hughston, Jack C.....Columbus
Paullin, William L. Jr.....Pelham

Iowa

David, John J.....Bettendorf
Eaton, Robert C.....Iowa City
Fishman, Harlow Jr.....Cherokee
Garner, John W.....Des Moines
Gugle, Lloyd J.....Iowa City
Harnagel, Edward E.....Des Moines
Powers, John L.....Dickens
Vandenberg, Allison R.....Pella

Kansas

Brown, Adrian J.....Kansas City
Brownell, Morton E. Jr.....Wichita
Burkett, Norman A.....Goessel
Butcher, Thomas P.....Emporia
Coldwell, William I. Jr.....Kansas City
Goldenberg, Erwin D.....Kansas City

Kentucky

Bryant, Thomson R. Jr.....Lexington
Castile, Eugene A.....Louisville
Childs, Wesley A.....Ford
Hathaway, Frederick H.....Louisville
Jiroch, John T.....Louisville
Lynn, Ralph D.....Louisville

Louisiana

Broykes, Jerald O.....Shreveport
Cullick, Louis.....Shreveport
Fenton, Thomas T.....Baton Rouge
Hancock, Warren E.....Shreveport
Hasseltine, Lee L.....Carville
Hodge, James B. Jr.....Baton Rouge
Marstaller, William E.....Pineville

Michigan

Anderson, Francis C.....Cadillac
Boland, Grant L.....Ann Arbor
Bovill, Edwin G. Jr.....Grosse Pointe
Bruer, Edgar S.....Detroit
Bruer, Edwin L.....Detroit
Bulthuis, Jerry E.....Holland
Burnett, John E. Jr.....Ann Arbor
Burroughs, Frank M. Jr...Grand Rapids
Campbell, John S.....Manistee
Fink, George C.....Ann Arbor
Gehringer, Norman F.....Pontiac
Gordy, Philip D.....Ann Arbor
Hackett, Thomas L.....Detroit
Kretschmer, Thomas V.....Saginaw
Larned, Richard I.....Detroit
Soriano, Jesus L.....Battle Creek
Wiant, John L.....Detroit

Minnesota

Banner, Edward A.....Rochester
Bergan, Robert O.....Clinton
Black, William A.....Rochester
Blake, Paul S.....No. Hopkins
Cooper, Wilford L.....Rochester
Coulter, Harold E.....Lamberton
Dwinnell, Leonard A.....St. Paul
Eichhorn, Edmund P. Jr.....Minneapolis
Everson, Tilden C.....Minneapolis
Fahlund, George T. R.....Rochester
Foster, Orley W.....St. Paul
Sauer, William G.....Rochester
Seiler, Kingman G.....Red Wing

Mississippi

Ainsworth, Joseph T.....Raymond
Balkin, Gilbert.....Drew
Bonds, James W.....Holly Springs
Flagg, Geddes B. Jr.....Gulfport
Guynes, Henry C.....Woodville
Hirsch, Jerome B. Jr.....Greenville
Murry, Abel V.....Ripley

Montana

Calvert, Matthew W.....Laurel
Clapp, Roger W.....Butte
Harmon, George A.....Ft. Harrison
O'Donnell, James J.....Lone Pine
Randall, Warren H.....Miles City

Nebraska

Ainlay, George W. Jr.....Omaha
Bunce, Paul L.....Omaha
Dickinson, Louis E. Jr.....Ravenna
Feehan, John J. Jr.....Clarks
Gass, Charles C.....Kearney
Gessford, Howard H.....Arthur
Hollister, Nathaniel R.....Irvington
Segard, Edwin C.....Dannebrog

New Mexico

Buckholts, Water H.....Butte
Dillon, Jackson C.....Clovis
Grossman, Jack W.....Albuquerque
Herzberg, Milton.....Shiprock
Latimer, Earl A. Jr.....Dexter
Nalty, Walter C.....Fort Bayard
Simms, Albert G. II.....Albuquerque
Smith, Clyn Jr.....Clovis

North Dakota

Armstrong, William B.....Fargo
Craven, James P.....Willston
Finsten, Herman L.....Grand Forks
Uthus, Oliver S.....S. Fargo

Oklahoma

Barb, Thomas J. Jr.....Oklahoma City
Beumer, Oliver C.....Gage
Bodine, Charles D.....Oklahoma City
Goodwin, Rufus C.....Oklahoma City
Waldrop, William L.....Oklahoma City

Rhode Island

Dennen, William I.....Providence
Giunta, Frank.....Providence
Lambiase, Joseph J.....Providence

South Carolina

Adams, Abram E.....Greenwood
Bryson, James Y.....Laurens
Fellers, Fred H.....Columbia
Grant, Lonnie C. Jr.....Columbia
Lawrence, Kenneth G.....Effingham

South Dakota

Dressel, Paul A.....Elkton
Eneboe, Edward M.....Viborg
Tammen, Henry.....Yankton

Tennessee

Arnoult, Mathew B.....Memphis
Bernstein, William C.....Knoxville
Bushart, James H.....Union City
Cannon, George M.....Jackson
Cochran, Hiram D.....Memphis
Colbrunn, Julius A. Jr.....Memphis
Conway, John P.....Memphis
Davis, George T. Jr.....Bristol
Gibson, Rae B.....Greenville
Gray, Alden H.....Kenton
Hughes, Felix A. Jr.....S. Nashville
Peyton, John H.....Lebanon

Utah

Balken, John B.....Salt Lake City
Bubblis, John L.....Salt Lake City
Gasser, George W.....Salt Lake City
Henderson, Jay H.....Salt Lake City
Holbrook, Von G.....Salt Lake City
Wyler, Glenn H.....Payson

Vermont

Andrew, Bertrand J.....Middlebury
Bittinger, Ralph E. Jr.....Rutland
Colombo, Harry L.....Montpelier
Fregosi, Albert H.....Proctor
Guilmette, Frederic J.....Rochester
Sennett, Edward J.....Poultney
Wakefield, Horatio P.....Burlington
Wolk, Arthur D.....Rutland
Woodruff, James G.....Barre

Virginia

Albertson, Horace A.....Richmond
Catron, Stuart H. Jr.....Marion
Chilton, William C. Jr.....Appomattax
Comess, Raymond R.....Norfolk
Dickie, Herbert G. Jr.....Roseland
Gill, Fleming W.....Richmond
Tavenner, Michael C.....S. Norfolk

Washington

Brinson, Ed L. Jr.....Bellingham
Friedman, Alan J.....Seattle
Gamon, Wilfred A.....Colbert
Reynolds, Richard M.....Kent
Sears, Thad P.....Spokane
Spickard, Warren B.....Seattle

Wisconsin

Baehr, Louis T.....Berlin
Becker, Barney B.....Milwaukee
Brillman, Lester P.....Milwaukee
Cash, Isadore I.....Milwaukee
Graham, Bruce D.....Roberts
Grant, Robert S.....Milwaukee
Hank, George C.....Madison
Hennen, Richard J.....Jefferson
Hogben, Charles A. M.....Madison
Humke, Everett W.....Eau Claire
Lapham, Landon M.....Cushing
Larsen, Roy B.....Waunatee
Rosen, Simon M.....Milwaukee
Smith, Gordon L.....Kendall

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Arkansas

Agar, Drew F.....Little Rock
Bassett, John W.....Pine Bluff
Bond, Sidney D. Jr.....Crawfordsville
Bramlett, Espie B.....Clarksville
Brizzolara, Aristo J.....Little Rock
Cothern, William R.....Morrilton
McCaskill, Melvin R.....Little Rock
Pickren, John W.....Salem
Pickren, Thomas R.....Salem
Reagan, Grady W. Jr.....Little Rock
Robbins, Allen I.....Conway
Thompson, Lawrence L. Jr...Little Rock

California

Benn, James J. Jr.....Oakland
Coye, Robert D.....Glendale
Doval, John H.....Sacramento
Edmister, Ivan F.....Oakland
Herzer, Frederick.....South Pasadena
Hine, Fred B.....Glendale
Ivers, Thomas R.....San Francisco
Jones, George W.....Pomona
Lynch, James M.....Pasadena
MacLaggan, James C.....San Diego
Morris, Robert R.....San Francisco
Nelson, Waldo R.....Los Angeles
O'Donnell, Joseph E.....Long Beach
Pearson, Alvirdo W.....Los Angeles
Soldmann, William T.....San Diego
White, Lawrence F.....Los Angeles

Delaware

Neese, Harry G. Jr.....Wyoming

Georgia

Burson, Ernest N. Jr.....Decatur
Combs, James M.....Covington
Hutchinson, William L.....La Grange
Lewis, James W.....La Grange
Neal, Jule C. Jr.....Rome
Roberts, Henry L.....Macon
Stevenson, Richard H.....Camilla

Illinois

Chapman, Asa Z.....Evanston
DeBord, Robert A.....Princeville
Gelman, Webster B.....Chicago
Gray, Seymour J.....Chicago
Hindman, Homer A. Jr.....Urbana
Long, Allen H.....Rockford
Madsen, Harold J.....Chicago
Method, Harold L.....Chicago
Murphy, John I.....Chicago
Owen, James G.....Monmouth
Pierandozzi, John S.....Chicago Heights
Sbertoli, Maurice W.....Chicago
Schaffner, Harold B.....Chicago

Maine

Burnett, Claude A., Jr.....Saco
Chasse, Richard L.....Waterville
Cornell, Robert C.....Cumberland Mills
Johnson, Donald G.....Bar Harbor
Taylor, Robert L.....Kingfield
Wilson, Ross L.....Gray

Massachusetts

Buckley, Arthur F.....New Bedford
Butman, Douglas E.....Waltham
Ceplikas, Thomas A.....North Andover
Hartman, Thomas L.....Boston
Hoelzel, Norman R....North Chelmsford
Kron, Rinaldo V.....Boston
Leary, Theodore M.....Arlington
Meissner, William A.....Brookline
Mekelburg, Abraham D.....Chelsea
Ohrenberger, Henry W.....Dorchester
Sullivan, Philip B.....Lawrence
Sweeney, William J.....Woburn
Taymor, Melvin L.....Boston
Whitney, Byron V. B.....Boston
Wilson, Robert F.....Andover

Missouri

Bareta, John.....Kansas City
Collison, Robert M.....St. Louis
Dietrich, Sanford R.....St. Louis
Freund, Harold G.....St. Louis
Keenoy, John J.....St. Louis
Lilly, Terry E. Jr.....Kansas City
McAfee, Chester A.....St. Louis
Quinn, Edward L.....Lockwood
Roth, John J.....St. Louis
Shank, Robert E.....St. Louis

Montana

Bourdeau, Emory J.....Missoula
Bridenbaugh, Richard B.....Billings
Sather, Paul O.....Troy

Nebraska

Anderson, Frank J.....Cody
Anderson, Gustave T.....North Platte
Artist, Elmer J.....Benkelman
Baer, Lesem J.....Omaha
Fitzpatrick, Hugh F.....Omaha
Hranac, Charles E.....David City
Jensen, Werner P.....Omaha
Meier, Woodrow W.....Oshkosh
O'Connor, John W.....Kearney
Pfeifer, LaVerne F.....Lincoln
Robbins, Howard M.....West Point
Schlichtemeier, Ellis O.....Nehawka
Smith, Arthur L. Jr.....Lincoln
Wahl, John W.....Omaha
White, Donald E.....Lincoln
Worden, Ralph E.....Omaha

New Hampshire

O'Neil, Roger W.....Nashua
Thomson, Charles R.....Exeter
Watson, Thomas R. Jr.....Portsmouth
Woodworth, Harold C.....Durham

New Jersey

Burrill, Benjamin B. Jr.....Sparta
Carroll, Bruce J.....Plainfield
Dreskin, Erving A.....Dunellen
Franklin, Charles M.....Princeton
Guito, Francis J.....Bradley Beach
Kunkel, Henry G.....Princeton
Lane, Edgar W. Jr.....Bloomsbury
McKinney, Thomas S.....Moonachie
Perr, Herbert M.....Newark
Pierson, Howard W. Jr.....Plainfield
Raffetto, Joseph F.....Manasquan
Snowwhite, Arthur B.....Elizabeth
Sullivan, Thomas W.....Jersey City
Waddill, Samuel G. F.....Passaic
Young, Alfred D.....Far Hills

Oklahoma

Barno, Alex.....Hartshorne
Barry, George N.....Oklahoma City
Boyd, Hugh L.....Bristow
Combs, Leon D.....Davenport
Donnell, John J.....Oklahoma City
Doudna, Huebert E.....Oklahoma City
Guthrey, George H.....Cardin
McCauley, Donald W.....Okmulgee
Rollins, James H.....Ardmore
Spangler, Arthur S.....Pauls Valley
Young, Millington O.....Oklahoma City

Oregon

Berglund, George A. J.....Portland
Brand, John W.....Portland
Duff, Ivan F.....Adams
Finley, Knox H.....Portland
Kliewer, Paul G.....Albany
Lee, Gilbert P.....Baker
Marcum, Robert W.....Portland
Seal, Sam Howard.....Eugene
Sittner, Wilhelm J.....Portland
Tyler, Frank H.....LaGrande
Van Zyl, Kenneth C.....Portland

Rhode Island

Cranor, John R. Jr.....Howard
Dunn, Paul F.....Providence
Hogan, John P.....Providence
McVay, John F.....Pawtucket
Peckham, Frederick G.....Newport

South Carolina

Ball, Frederic M.....Charleston
Boatwright, Harry.....Seneca
Boylston, Bedford F.....Aiken
Boyter, Henry H.....Woodruff
Dudley, Frederick D.....Bennetsville
Ellis, Ernest B.....Martin
Lynch, Kenneth M. Jr.....Charleston
Rawl, Alfred E. Jr.....Navy Yard

Tennessee

Coors, George A.....Memphis
Davis, Tudor B. C.....Memphis
Diamond, William D.....Memphis
Driver, Leslie R. Jr.....Bristol
Earnest, Charles R. Jr.....Knoxville
Greene, George G.....Memphis
Grimmett, Matthew H. III..McMinnville
Hayes, Tuckey, J. T. Jr.....Knoxville
Hutson, William F.....Knoxville
James, Hal P.....Memphis
Karr, Howard H.....Chattanooga
Lyle, William G.....Clarksville
Meyer, Alphonse H. Jr.....Memphis
Petrone, Michael A.....Nashville

Texas

Acker, Julian H.....Dallas
Addison, Jack J.....Dallas
Anthony, James M.....Austin
Barker, Edward C.....Mercedes
Clawater, Earl W. Jr.....Tyler
Duflot, Leo S. M.....Canyon
Garcia, Joseph I., Jr.....Brownsville
Goodall, Edwin.....Valley Mills
Halley, Bonnie C. Jr.....Temple
Hallum, Basil A., Jr.....Brady
Hardy, Sidney B.....Houston
Hays, Robert D.....Brady
Kaplan, Harry L.....Dallas
King, Carey G. Jr.....Dallas
Lay, James V. M.....Galveston
Lee, James F.....Dallas
Little, John F.....Cleburne
McBridge, James O.....Fort Worth
Mattison, Myron D.....Donna
May, Henry K.....San Antonio
Myers, Gordon S.....Brownsville
Norris, Ronald F.....LaPorte
Payne, Virgil M. Jr.....Dallas
Riddel, Roy L. Jr.....Lubbock
Seybold, William D.....Austin
Smyth, Olin T. Jr.....Cleburne
Stampfli, Frank V.....El Paso
Stiernberg, Royall C.....Galveston
Taylor, Thomas U., III.....Fort Worth
Wales, Philip A.....Florence

Washington

Davidson, James D.....Edmonds
Degge, James H., Jr.....Everett
Gable, Charles M.....Everett
Hankamp, LeMar J.....Lynden
Jarvis, Rodney M.....Seattle
Jones, Grodon E.....Seattle
Lyda, Wood.....Seattle
Maddux, Richard H. Jr.....Tacoma
Meade, Thomas N.....Goldendale
Mowery, Charles R. Jr.....Spokane
Mueller, Harold D.....Seattle
Nichols, Samuel I.....Shelton
Patton, Matthew M.....Spokane
Peterson, Heyes.....Olympia
Power, John L.....Seattle
Sim, Van Murray.....Olympia

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meeting.—The Fifth District Medical Society met in Camden, October 3, to hear the following speakers:

Dr. Paul M. Ramey, Temple, Texas, The Surgical Treatment of Subdiaphragmatic Abscess.

Dr. Clyde A. Stevenson, Temple, Texas, Recent Advances in Treatment of Carcinoma of the Cervix.

Dr. Henry K. Wade, Hot Springs, Legislative Trends.

Dr. William R. Brooksher, Fort Smith, Veterans Administration Program of Medical Care.

CONNECTICUT

Institute of Occupational Medicine.—The establishment of an Institute of Occupational Medicine and Hygiene at Yale University was announced October 29. Dr. Ronald F. Buchan, newly appointed assistant professor of industrial medicine, has been named head of the institute with the title of clinical director, effective November 1. The primary aims of the institute are:

The training of medical students and industrial physicians, based on the belief that occupational medicine and hygiene is now a specialty.

Special graduate instruction, together with the opportunity for research in the field of occupational medicine and hygiene, which will be available to graduate students in medicine, nursing, public health and engineering.

Research in occupational medicine and hygiene, in the belief that the maintenance of active research in such an important field is of teaching value to the intelligent student.

Consultation. The institute will be designed to assist industrial concerns on certain practical questions in the same fashion in which the clinicians in the school of medicine assist their colleagues in the practice of medicine with regard to medical, surgical or public health problems.

The program will be supervised by a committee composed of the following members of the Yale faculty: Dean Blake, serving ex officio; Dr. William T. Salter, professor of pharmacology; Dr. George M. Smith, research associate in anatomy; Ira V. Hiscock, Sc.D., professor of public health, and Dr. John R. Paul, professor of preventive medicine, chairman. This committee will serve as the coordinating group, which will work with Dr. Buchan, the clinical director, in planning the work of the institute at the inauguration of the program. Dr. Buchan, who will sit with the committee, has been practicing industrial medicine in Hartford, where he has been concerned primarily with the organization of medical services for a group of small industrial plants. One of the main teaching functions will be concerned with instruction to all medical students at Yale. This will include special lectures to fourth year students and the opportunity, when the occasion arises, to work as apprentices in well established medical departments of large industries. The special graduate instruction which will be available to graduate students in medicine, nursing, public health and engineering will be integrated and directed by a well organized and special division of the school of medicine. Assistance will also be given in the provision of in-service training courses and in the development of programs for the rehabilitation of workmen convalescent from injury or illness. The research work which the school of medicine and other departments of the university have carried on in subjects allied with industrial medicine will be continued and, where necessary, expanded. These include toxicology, industrial poisons, noxious gases, fumes, dust ventilation and sanitation. In the field of consultation the institute will not compete with the type of service offered by the bureau of industrial hygiene of the Connecticut State Department of Health but will supplement these programs through the facilities of Yale's staff, laboratories and libraries. The facilities of the various schools at Yale concerned with different aspects of occupational medicine will be used as needed. The Connecticut State Medical Society has appointed a committee to serve as liaison with the work of the institute. The members of this committee are Dr. Creighton Barker, New Haven, executive secretary of the society; Dr. Thomas P. Murdock, Meriden, and Dr. Charles F. Yeager, Bridgeport. The initial funds to finance the inauguration of the program were raised through a committee headed by Eugene E. Wilson, Hartford, vice chairman of the United Aircraft Corporation, assisted by F. Thatcher Lane, New Haven, president of the Seamless Rubber Company, who served as vice president.

ILLINOIS

Chicago

University News.—Dr. Einar Lundsgaard, professor of physiology and director of the Institute for Medicine and Physiology, University of Copenhagen, Denmark, lectured at the University of Illinois College of Medicine, October 30, on "Muscle Metabolism."

Medical Technologists.—Ruth Feucht, M.T., was chosen president-elect of the Chicago Society of Medical Technologists at a recent meeting and Helen S. MacVeagh, M.T., was installed as president. Cecelia M. Kortuem, St. Vincent's Infant and Maternity Hospital, 721 North LaSalle Street, is the corresponding secretary. The group meets the third Thursday of each month from October through June. The society is an affiliate of the American Society of Medical Technologists, which will hold its annual convention in the Shirley-Savoy Hotel, Denver, June 30-July 2.

Hamilton Bailey Lectures on Salivary Gland.—Mr. Hamilton Bailey, noted surgeon and fellow of the Royal College of Surgeons, London, England, lectured at the American Hospital, October 30, on "Surgery of the Salivary Glands." The lecture was under the auspices of the Clinical Society of the American Hospital. Mr. Bailey, on conclusion of a tour of the Headquarters of the American Medical Association, October 29, was guest at a luncheon given by officials of the Association. He will speak at the University of Virginia and in other medical centers before returning to England.

INDIANA

Ninety-Seven Years of Age.—Dr. Wilson T. Lawson, Danville, where he has been practicing for sixty-eight years, celebrated his ninety-seventh birthday recently. Dr. Lawson is said to be the oldest living graduate of Wabash College, where he took his premedical work. He has been secretary for many years of the Hendricks County Medical Society and is still in active practice.

KENTUCKY

State Medical Election.—At a recent meeting of the Kentucky State Medical Association Dr. Francis G. Aud, Louisville, was named president-elect and Dr. Elbert W. Jackson, Paducah, was installed as president. Other officers include Drs. Robert W. Robertson, Paducah, Lawrence T. Minish Sr., Frankfort, and Samuel A. Overstreet, Louisville, vice presidents, Dr. Woodford B. Troutman, Louisville, treasurer, and Dr. Philip E. Blackerby, Louisville, secretary. The association's distinguished award went to Dr. Smithfield Keffer, Grayson, who has held every office in the Carter County Medical Society. The E. M. Howard Memorial Award went to Dr. John E. Kincheloe, Hardinsburg, who recently received nationwide publicity when Kincheloe Day was observed in Breckenridge County to honor the physician's forty-seven years of practice. The association adopted a three point hospital standardization program calling for:

Kentucky Medical Association encouragement of efforts of the hospital advisory committee to the state board of health to have enacted a law providing for "minimum hospital standards" in Kentucky.

Establishment at the University of Kentucky and the four state teachers' colleges of first class schools of nursing in conjunction with hospitals in their respective environs.

A survey, if funds are made available, for the study of the educational and other personnel training facilities for the people who must lead our health program.

The hospital standardization committee, composed of Drs. Hugh L. Houston, Murray, William L. Tyler, Owensboro, and Ulysses G. Brummett, Middlesboro, pointed out that Kentucky is one of the few states without laws regulating hospitals and stated that "without such laws it will be ineligible to participate in federal grants and programs."

MASSACHUSETTS

Personal.—Dr. Charles P. Sheldon has been appointed chief of the service of obstetrics and gynecology at the Faulkner Hospital, Jamaica Plain, Boston, and Dr. James A. Halsted chief of the medical service, to succeed Dr. Raymond S. Titus and Dr. Channing Frothingham, who have reached the retirement age.

Changes in Faculty at Boston University.—Lloyd C. Fogg, Ph.D., associate professor of microscopic anatomy, has been appointed registrar at the Boston University School of Medicine, effective at the beginning of the current academic year. Dr. Fogg received his degree of Ph.D. at Columbia University in 1931 and has been a member of the Boston faculty since 1940.——Kenneth E. Penrod, Ph.D., Iowa City, has been appointed assistant professor of physiology at Boston University, effective August 1.

Harvard Expands Public Health Program.—Dr. Hugh R. Leavell, formerly assistant director, division of medical sciences, Rockefeller Foundation, has been appointed to the chair of public health practice at Harvard University Graduate School of Public Health, filling the vacancy that occurred with the death of Dr. Edward G. Huber in July. Dr. John C. Snyder, formerly of New York, has been named to a newly created chair of public health bacteriology. In addition to degrees which presuppose qualifications as doctor of medicine, the school has added the degrees of master of science in hygiene and doctor of science in hygiene, open to investigators. Thus research on problems connected with public health, as well as instruction, will be augmented. During the war Dr. Leavell served as deputy director of health in the European office of UNRRA. Dr. Snyder was a member of the U. S. Typhus Commission when it was organized during World War II. Since his release from the army in 1945 he has been in charge of a program of typhus investigation sponsored by the International Health Division.

MISSOURI

Ernest Sachs Retires.—Dr. Ernest Sachs, a member of the faculty of Washington University School of Medicine, St. Louis, for thirty-five years, has retired as professor of neurologic surgery to become professor emeritus. He will continue his work at Barnes and Children's hospitals and will also continue to train graduate students in neurologic surgery.

District Meeting.—The First Councilor District Society and the St. Joseph Clinical Society held a clinical conference at the Robidoux Hotel, St. Joseph, September 19, under the presidency of Dr. Frederick Gregg Thompson, St. Joseph, for the clinical society and Dr. Harold E. Petersen, St. Joseph, for the district society. Among the speakers were:

Dr. Ronald M. Buck, St. Joseph, Glass Cloth as a Wound Dressing in Orthopedic Surgery.
Dr. Thompson E. Potter, St. Joseph, Treatment of Varicose Veins: Presentation of Two Cases.
Dr. Roy Smith, Rochester, Minn., Treatment of Cardiac Failure.
Raymond McIntyre, St. Louis, State Medical Association Problems.
F. Kenneth Helsby, Kansas City, Prepaid Hospitalization and Medical Care.
Dr. Herbert C. Miller, Kansas City, Recent Advances in the Study of Rheumatic Fever.
Dr. James O'Donoghue, St. Joseph, Intrathoracic Calcifications.
Dr. Wilbur P. McDonald, St. Joseph, Wound Closure in Compound Fractures.
Dr. James B. Brown, St. Louis, Military Plastic Surgery.
Dr. Howard B. Goodrich, Hannibal, Program of the Missouri State Medical Association.

Appointment in Occupational Therapy.—Miss Sue Hurt, field secretary of the American Occupational Therapy Association and for several years director of the department of occupational therapy of the Richmond Professional Institute of the College of William and Mary, Richmond, Va., has been appointed director of the department of occupational therapy, Washington University School of Medicine, St. Louis. The department was started in 1918 as the St. Louis School for Reconstruction Aides and is said to be the first training center of its kind west of the Mississippi. In 1919 the name was changed to the St. Louis School of Occupational Therapy. Extension of the program was made possible in 1934 by an association with Washington University, and the name was again changed to St. Louis School of Occupational and Recreational Therapy. A subsequent bequest by Rachel Stix Michael brought about a closer affiliation with the university, and in February 1946 the school was established as a department in the division of auxiliary medical services. This division is conducted under the direction of the dean and the executive faculty of Washington University School of Medicine.

NEW YORK

New Tumor Service.—Dr. Lionel S. Auster, attending surgeon at the Bronx Hospital, has been named head of the newly created tumor service at the hospital. The service is replacing the former tumor clinic and conference unit which he headed prior to his entrance into the naval service in 1941, operations of which were suspended during the war years. The new department, which will provide comprehensive diagnostic, teaching and treatment service for both ambulant and inpatient oncologic cases, was to start functioning in October.

Faculty News.—Elmer H. Stotz, Ph.D., head of the division of food science and technology at the New York State Agricultural Experiment Station, Geneva, has been appointed professor of biochemistry and chairman of the department of biochemistry, University of Rochester School of Medicine and Dentistry. He will succeed Walter R. Bloor, Ph.D., professor of biochemistry and pharmacology and associate dean of the school of medicine when Dr. Bloor retires from the faculty next June. Dr. Bloor has been a professor at the medical school since 1922. Dr. Stotz joined the Agricultural Experiment Station staff in 1943 after serving for five years as director of laboratories of McLean Hospital and instructor in biochemistry at Harvard Medical School, where he specialized in investigations of tissue metabolism and enzyme chemistry. Appointed as head of the division of chemistry at the experiment station to succeed Donald K. Tressler, Ph.D., Dr. Stotz was named head of the division of food science and technology in 1945 when the new division was created by the board of trustees of Cornell University by merging the divisions of bacteriology and chemistry.

New York City

Changes in Health Personnel.—Dr. George James, assistant district health officer of Middletown, was appointed to a similar position for Greene and Ulster counties with headquarters at Kingston, effective September 1. Dr. James succeeds Dr. Berwyn F. Mattison, Albany, who resigned to become health officer of Yonkers (THE JOURNAL, October 19, p. 400).

Normal and Atypical Pigment Cell Growth.—A conference on the biology of normal and atypical pigment cell growth will be held November 15-16 at the American Museum of Natural History under the auspices of the section of biology of the New York Academy of Sciences. Among the speakers will be:

Dr. George T. Pack, The Melanoma Problem.
Graham P. DuShane, Ph.D., Palo Alto, Calif., Origin and Development of the Melanophores.
Dr. Glenn H. Algire, Bethesda, Md., Growth and Vascular Reactions of Transplanted Mouse Melanomas.
James B. Hamilton, Ph.D., Brooklyn, Influence of the Endocrine Status on Pigmentation in Man and in Mammals.
Frank H. J. Figge, Ph.D., Baltimore, Chemical Nature of Melanin.
Jesse P. Greenstein, Ph.D., Bethesda, Md., Chemistry of Melanomas.
Dr. Dennis L. Fox, La Jolla, Calif., Some Features of Melanoid Biochromy in Animals.

Faculty Appointments and Promotions.—Dr. James M. Winfield, associate professor of surgery, Wayne University College of Medicine, Detroit, has been appointed professor of surgery, attending surgeon and educational director of the department of surgery at the New York Medical College, Flower and Fifth Avenue Hospitals. During World War II, Dr. Winfield served as a colonel in the Army Medical Corps. He was surgical chief of the 36th General Hospital and Hospital Center consultant. He will have as deputies in each of the hospitals affiliated with the college the following, who will assist with the daily supervision and direction of the teaching program in those institutions: Dr. Walter L. Mersheimer, assistant professor of surgery, who will be assigned at the Metropolitan Hospital; Dr. Allan S. Graham, instructor in surgery, assigned to the Flower and Fifth Avenue Hospitals, and Dr. Nicholas Tiscione, assistant clinical professor, assigned to the Queens General Hospital. The assignment to the City Hospital has not yet been made. Claude M. McFall, Ph.D., who has been head of the anatomy department at George Washington University School of Medicine, Washington, D. C., since 1939, has been appointed visiting professor of anatomy for the current academic year. New appointments include Dr. Preston A. Wade, clinical professor of surgery; Dr. James H. Kidder, associate clinical professor of surgery; Dr. Wilfred F. Ruggiero, associate clinical professor of surgery, and E. Lawrence House, Ph.D., assistant professor of anatomy. Promotions include:

Roger C. Gay, Ed.M., assistant dean.
James W. Benjamin, Ph.D., professor of anatomy and assistant to the dean.
Lois C. Lillick, Ph.D., associate professor of bacteriology and active director of the department.
Dr. Francis D. Speer, associate professor of clinical pathology and director of the laboratory.
Dr. Lawrence B. Slobody, associate professor in pediatrics and associate attending pediatrician.
Dr. Charles A. Turtz, associate clinical professor of ophthalmology and associate attending ophthalmologist.
Dr. Herman Robbins, assistant professor of pediatrics and assistant attending pediatrician.
Dr. Jerome G. Kaufman, assistant professor of medicine and assistant attending physician.
Dr. Samuel L. Saltzman, assistant clinical professor of ophthalmology.

OKLAHOMA

New Position as Health Consultant.—Milton L. Shurr, formerly health consultant in Omaha, has been named director of public health education and coordination for Tulsa County, a newly created position within the Tulsa City Health Department. One of Mr. Shurr's activities will be to coordinate functions of health and welfare agencies in the city. According to the *Bulletin* of the Tulsa County Medical Society the present experimental setup for three years is hoped to become a perma-

nent part of health education activities in Tulsa. The position is jointly sponsored by the Tulsa Council of Social Agencies and participating members.

PENNSYLVANIA

Personal.—Dr. Merl G. Colvin, Williamsport, medical director of Lycoming County for the past seven years, has been appointed a member of the state advisory health board.

Philadelphia

Annual Banquet.—The sixtieth annual banquet of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital will be held on Tuesday, December 3, at the Bellevue-Stratford Hotel, Broad and Walnut streets. The guest of honor will be Dr. Edward A. Schumann. Reservations may be had by writing to the secretary-treasurer, Dr. Robert C. McElroy, 133 South 36th Street, Philadelphia 4.

Esmond Long Named Director of Research for Tuberculosis Association.—Dr. Esmond R. Long, director of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, has been appointed director of research of the National Tuberculosis Association. Dr. Long was president of the association in 1936 and has been a member of its Committee on Medical Research since 1929. He received the Trudeau Medal for tuberculosis research in 1932.

TEXAS

State Medical Election.—At a recent meeting of the State Medical Association of Texas Dr. Britton E. Pickett Sr., Carrizo Springs, was chosen president-elect, and Dr. Claude C. Cody Jr., Houston, was installed as president. Other officers include Drs. Samuel D. Whitten, Greenville, Charles P. Yeager, Corpus Christi, and James M. Campbell, Goldthwaite, vice presidents, Dr. Holman Taylor, Fort Worth, secretary and Dr. Khleber H. Beall, Fort Worth, treasurer.

University News.—A new course dealing with the applications of physics to physiology and medicine has been inaugurated at the University of Texas Medical Branch, Galveston, under the auspices of the departments of physiology and radiology. The new course is designed as an orientation course for first year students and will be given once weekly during the first semester. Howard G. Swann, Ph.D., assistant professor of physiology at the University of Texas, has received a grant of $10,000 from the Army Research Program for studies on aviation physiology. During the war Dr. Swann was associated with the Aviation Physiology Laboratories at Wright Field. The grant is for the purpose of assisting in the continuance of studies undertaken by Dr. Swann while at Wright Field. Wilbur A. Selle, Ph.D., professor of physiology at the medical branch, is surveying American medical centers under the auspices of the Baruch Committee for Physical Medicine in order to develop satisfactory methods for teaching the medical application of physics to undergraduate medical students. Dr. Truman G. Blocker Jr., on terminal leave as colonel in the Medical Corps of the U. S. Army, and formerly in charge of Wakeman General Hospital, Camp Atterbury, Ind., is returning to the University of Texas Medical Branch as professor of plastic and maxillofacial surgery. W. D. Collings, Ph.D., has resigned as professor of physiology at the University of Texas Medical Branch to become assistant professor of physiology at the State University of Iowa College of Medicine, Iowa City, and Dr. Stephen Weisz has resigned as associate professor of neuropsychiatry and assistant director of the State Psychopathic Hospital to become associate professor of neuropsychiatry at Southwestern Medical College, Dallas.

VERMONT

State Medical Election.—Dr. Benjamin F. Cook, Rutland, was named president-elect of the Vermont State Medical Society at its meeting in Burlington, October 2. Dr. Cook will not take office as president until 1948. Dr. Frank C. Angell, Randolph, was installed as president. Other officers elected are Dr. Hiram E. Upton, Burlington, vice president, Dr. Theodore H. Harwood, Burlington, secretary, and Dr. David Marvin, Essex Junction, treasurer. The establishment of a state health council to coordinate the work of the society with other health agencies and with labor, agriculture and industry was advocated by the house of delegates. It was also decided to develop and extend a voluntary prepayment medical care plan throughout the state and support the college of medicine of the University of Vermont in its effort to provide training to physicians for rural areas.

WEST VIRGINIA

Publicity Director for Cancer Control.—Calvert L. Estill, Charleston, has been appointed publicity director for the West Virginia Cancer Society, effective October 1. Mr. Estill, who was formerly director of public welfare of West Virginia, is staff correspondent for the Ogden chain of newspapers.

Effect of Prenatal Blood Test Law.—Since the prenatal blood test law became effective in July 1945, 80 per cent of the expectant mothers in the state have received a blood test for syphilis prior to the birth of their children. However, of this number only about 40 per cent were given the test on or before the fifth month of pregnancy, notwithstanding the fact that health authorities have emphasized the importance of having the test made before the fifth month to avoid if possible the hazards of miscarriages, stillbirths or congenital syphilis. Of the 36,071 expectant mothers examined during the fiscal year ended June 30, 674 were found to have syphilis. While 514 were new cases which were placed under treatment, 160 expectant mothers had previous knowledge of the disease. In a recent address Mr. E. J. Hall, educational consultant for the bureau of venereal disease control, state health department, said that "the low percentage of expectant mothers receiving blood tests in the first five months of pregnancy indicates that only a small number of women are receiving proper prenatal care in West Virginia and no doubt partly accounts for the fact that West Virginia's infant mortality rate is 30 per cent higher than the United States as a whole." Mr. Hall reported that 5 per cent of all deliveries in West Virginia are performed by licensed midwives. The act itself makes no provision for blood tests by midwives, but county and district health officers are charged with the duty of obtaining blood specimens for performing serologic tests for syphilis. There is no charge for this service, and examinations are made also without charge at the state hygienic laboratory. The law goes further than this and provides that in areas where there is no county or district health officer the state health department is to assume the responsibility of obtaining specimens without charge to pregnant women.

WISCONSIN

Annual Dearholt Day.—The seventh annual Dearholt Day, presented for the medical students and the general medical profession of Wisconsin by the Wisconsin Anti-Tuberculosis Association, will be held November 18 in Madison and November 19 in Milwaukee. The program will be presented in both cities by Sol R. Rosenthal, Major, M. C., chief of laboratory service, Bruns General Hospital, Santa Fe, N. M., on "BCG in Tuberculosis," and Dr. Julius L. Wilson, associate professor of medicine, Tulane University of Louisiana School of Medicine, New Orleans, on "Cause of Apical Localization of Tuberculosis and Its Implications for Treatment." Dr. Wilson will also speak on "Pulmonary Emphysema: Pathologic Physiology and Treatment." Cooperating in both programs are the Marquette University School of Medicine, Milwaukee; University of Wisconsin Medical School, Madison; Milwaukee Academy of Medicine, Dane County Medical Society and Wisconsin Trudeau Society.

GENERAL

A. A. A. S. Moves Into New Home.—The American Association for the Advancement of Science on September 9 began moving into its new home at 1515 Massachusetts Avenue N.W., Washington 5, D. C. The administrative offices and the editorial office of the *Scientific Monthly* were transferred from the Smithsonian Institution building to the new site, and the editorial office of *Science* and the office of the advertising department were removed from a "temporary building" (constructed in 1917) of the War Department on the campus of the American University several miles distant in the western part of the city.

Aero-Medical Association.—Membership in the Aero-Medical Association of the United States is open to qualified applicants who have some active interest in aviation medicine. This announcement is directed especially to those flight surgeons who are now C. A. A. examiners or who perform flight physical examinations for private individuals or for flight personnel connected with commercial flying. Inquiries may be directed to Dr. Ludwig G. Lederer, medical director, Capital Airlines, Washington National Airport, Washington 1, D. C., who represents civilian interests on the membership committee of the Aero-Medical Association of the United States.

Hermann Muller Awarded Nobel Prize.—Hermann J. Muller, Ph.D., professor of zoology, Indiana University, Bloomington, has been awarded the Nobel Prize in medicine and physiology, it was announced October 31, for his work in discovering that "mutations, or biological changes in species, may be produced by x-rays." Dr. Muller's research throughout his career has been concerned with mutations and evolution. He joined the Indiana University staff in 1945, having resigned as professor of biology at Amherst College. Newspaper reports announce that the Rockefeller Foundation granted $95,000 to Indiana University last year for a six year research program in the field of genetics, and Dr. Muller was named as one of three scientists to conduct it. The American Cancer Society made a grant of $4,500 to Dr. Muller last week for the study of cancer.

Prize in Gastroenterology.—The National Gastroenterological Association announces its annual cash prize award contest for 1947. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy. Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges, and the award is to be made at the annual convention banquet of the National Gastroenterological Association in June of 1947. Certificates awarded to other physicians will be mailed to them. All entries for the 1947 prize should be limited to 5,000 words, typewritten in English, prepared in manuscript form, submitted in five copies, accompanied by an entry letter, and must be received not later than April 1, 1947. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23.

International Hematology and Rh Conference.—The International Hematology and Rh Conference will be held in Dallas, Texas, November 15-16 under the auspices of Baylor Hospital, Dallas, and in affiliation with the second Mexican Blood Transfusion Congress, which is to be held during the following week. Dr. Joseph M. Hill, Dallas, will preside at the opening session, at which speakers will be Dr. Ignacio Gonzalez Guzman offering greetings from Mexico, Dr. William L. Hart greetings from Dallas and Mr. Lawrence R. Payne a welcome from Baylor Hospital. Other speakers on the program will include:

Dr. Philip Levine, Linden, N. J., Brief Survey of the Significance of the Rh Factor.
Dr. Ernest Witebsky, Buffalo, Interrelationship Between the Rh System and the A B System.
Dr. Guzman, Nuclear Structure of the Blood Cells.
Dr. Robert R. Race, London, England, The Rh Genotypes and Fisher's Theory.
Dr. Hill, Evidence for Rh Antibodies Differing from the Agglutinating Types.
Dr. William Dameshek, Boston, Hemolytic Mechanisms.
Dr. Louis K. Diamond, Boston, Physicochemical and Immunologic Characteristics of Rh Antibodies.
Dr. Israel Davidsohn, Chicago, Rh Antibodies.
Dr. Ludwig Hirszfeld, Wroclow, Poland, The Constitution, Heredity and Terminology of the Subgroups.

There will also be a round table discussion with Dr. Levine presiding. At the banquet Dr. Eduardo Uribe Guerola, Mexico, D. F., Mexico, will be the principal speaker on "The Transfusion Congress."

Educational Program on Diseases of the Heart.—The initiation of a nationwide program of public education and information on diseases of the heart was announced October 4 by the American Heart Association, 1790 Broadway, New York. The object of the campaign is "the dissemination of educational information to the public in a broad effort to retard the rapid increase of heart disease throughout the nation." The program calls for emphasis on educational work with schools, parent-teachers' associations and other groups concerned with children because of the importance of rheumatic fever and heart disease. According to recent surveys, this scourge of children causes more than five times as many deaths as the combined total of deaths from infantile paralysis, scarlet fever, diphtheria, measles, meningitis and whooping cough. It is a serious disease among adults too, as illustrated by the estimated 40,000 veterans who acquired the disease during their recent military service. The educational campaign of the American Heart Association will reach its climax during the National Heart Week to begin on February 9, which includes St. Valentine's day. It is expected that all branches of medicine, pharmacy, insurance, industry and many other groups interested in health and public welfare will cooperate fully. Supporting and cooperating groups will include the following national organizations, which comprise the American Council on Rheumatic Fever of the American Heart Association:

American Academy of Pediatrics.
American Association of Medical Social Workers.
American College of Physicians.
American Hospital Association.
American Medical Association.
American Nurses Association.
American Public Health Association.
American Rheumatism Association.
American School Health Association.
National Organization for Public Health Nursing.
National Society for Crippled Children and Adults.

Special Society Elections.—At the annual meeting of the American Diabetes Association Dr. Russell M. Wilder, Rochester, Minn., was chosen president. Other officers include Drs. Edward S. Dillon, Philadelphia, and Charles H. Best, Toronto, Ont., Canada, vice presidents, Dr. Cecil Striker, Cincinnati, secretary, and Dr. William Muhlberg, Cincinnati, treasurer. The next meeting of the association will be held in Atlantic City in June.——Dr. Robert D. Mussey, Rochester, Minn., was chosen president-elect of the American Association of Obstetricians and Gynecologists in Hot Springs, September 5-7. Dr. Archibald D. Campbell, Montreal, Quebec, was installed as president. Other officers include Dr. Adam P. Leighton, Portland, Maine, vice president, Dr. James R. Bloss, Huntington, W. Va., secretary, reelected, Dr. Leroy A. Calkins, Kansas City, Mo., assistant secretary, and Dr. Ward F. Seeley, Detroit, treasurer. The 1947 meeting will be held at the Homestead, Hot Springs, September 4-6.——At a recent meeting of the Central Association of Obstetricians and Gynecologists Dr. William F. Mengert, Dallas, Texas, was named president-elect, and Dr. Earl C. Sage, Omaha, was installed as president. Other officers include Dr. George Kamperman, Detroit, vice president; Dr. John I. Brewer, Chicago, secretary-treasurer, and Dr. Harold L. Gainey, Kansas City, Mo., assistant secretary. The 1947 meeting of the association will be held in Louisville, Ky., the exact dates to be determined later.——Dr. Frank R. Bradley, St. Louis, was recently elected president of the American College of Hospital Administrators.——At a recent meeting of the American Broncho-Esophagological Association Dr. Robert M. Lukens, Philadelphia, was elected president. Other officers include Dr. Murdock S. Equen, Atlanta, Ga., vice president; Dr. Paul H. Holinger, Chicago, secretary, and Dr. Clyde A. Heatly, Rochester, N. Y., treasurer.

Marriages

Peter Nicholas Horvath, Bethesda, Md., to Miss Irene Kulig of Thorp, Wis., in Forest Glen, Md., August 10.

Daniel Elliott Mack, Windsor, Conn., to Miss Elizabeth Thomas of Mobile, Ala., in Syracuse, N. Y., June 23.

Rodney Robert Gleysteen, Alton, Iowa, to Miss Laura Hannah Funnell in Chula Vista, Calif., September 2.

Virgil Shields LeQuire, Rochester, N. Y., to Miss Louise Fairfax Lasseter of Nashville, Tenn., August 20.

Sidney Ourin Krasnoff, Philadelphia, to Miss Ruth Buchsbaum Bernstein of Elkins Park, June 11.

William Riley Snow, Abilene, Texas, to Mrs. William Emmett Ryan in Amarillo, September 1.

Edward L. Rohlf to Miss Lorene Lindaman, both of Waterloo, Iowa, at Cedar Rapids in August.

Carroll K. Clawson, Grand Rapids, Mich., to Miss Doris Marie Bowman of Kalamazoo, July 2.

Gaston E. Blom, Bronxville, N. Y., to Miss Dorothy Ruth Engstrand of Douglaston, July 20.

Robert Nelson Jr. to Mrs. Frances Franke McNutt, both of Birmingham, Ala., in August.

Louis J. Noun, Des Moines, to Miss Ellen Miles of Alexandria, Va., in Chicago, June 28.

Thomas Kermit Hepler, Harrisburg, Pa., to Dr. Jeanne L. Truter of Danville, June 6.

Edward Olin White, Ehrhardt, S. C., to Miss Ruth Griffin of Charleston, July 12.

Basil B. Dulin to Miss Julia Louise Guess, both of Indianapolis, May 26.

William S. Judy to Mrs. Daisy S. Guy, both of Greenville, S. C., June 8.

Naftula Izbicki to Miss Rose Malekow, both of Chicago, August 11.

Deaths

Clement Buchanan Masson ✦ New York, George Washington University School of Medicine, Washington, D. C., 1921; born in Newburgh, N. Y., Feb. 2, 1898; assistant professor of clinical neurosurgery at the Columbia University College of Physicians and Surgeons; specialist certified by the American Board of Neurological Surgery; member of the American Psychiatric Association and the Association for Research in Nervous and Mental Disease; fellow of the American College of Surgeons; on the staff of the Neurological Institute of New York; on the staffs of the Grasslands Hospital, Valhalla; consulting neurosurgeon, Vassar Brothers Hospital, Poughkeepsie, Northern Westchester Hospital in Mount Kisco, N. Y., and the Hackensack (N. J.) Hospital; died in the Doctors Hospital, September 5, aged 48.

Herman Grove Difenderfer ✦ Johnstown, Pa.; Medico-Chirurgical College of Philadelphia, 1911; born in Milton, Pa., Aug. 9, 1886; member of the staffs of the Conemaugh Valley Memorial and Mercy hospitals; served as director of the First National Bank in Beaverdale and as director of the Portage National Bank; medical inspector of the schools in Beaverdale, Wilmore and Summerhill since 1918 and a member of the Summerhill Township school board since 1925; member of the draft board at South Fork during World War I and chairman of Cambria County Selective Service Board number 5, South Fork, during World War II; received a Presidential Citation for his services; died September 5, aged 60, of bronchial asthma.

George Henry Semken ✦ New York; Columbia University College of Physicians and Surgeons, New York, 1896; member of the founders group of the American Board of Surgery; an adviser to the New York Institute of Clinical Oral Pathology; fellow of the New York Academy of Medicine and the American College of Surgeons; member of the New York Surgical Society and the New York Pathological Society; member of the executive committee of the American Cancer Society; consultant, New York City Cancer Institute Hospital; consulting surgeon to the Institute of Cancer Research, Columbia University and the Knickerbocker Hospital, where he died September 16, aged 71.

Dennett L. Richardson ✦ Providence, R. I.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; member of the House of Delegates of the American Medical Association in 1913; served as president of the Hospital Association of Rhode Island and superintendent of health of Providence; author of "Infectious Diseases and Aseptic Nursing Technique"; formerly superintendent of the Providence City Hospital, which later changed its name to the Charles V. Chapin Hospital, where he was also superintendent; for many years superintendent of the Rhode Island Hospital, where he died September 6, aged 66.

Carl Goodwin Burdick ✦ Wilton, Conn.; Columbia University College of Physicians and Surgeons, New York, 1903; clinical professor of surgery at the New York University College of Medicine; member of the American Surgical Association; fellow of the American College of Surgeons and the New York Academy of Medicine; past president of the New York Surgical Society; member of the founders group of the American Board of Surgery; served overseas during World War I; on the staffs of the Bellevue Hospital and the Hospital for Special Surgery, both in New York; died September 1, aged 66, of heart disease.

Foster Miller Routh ✦ Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1910; served as member, chairman and for many years member of the executive committee of the state board of health; past president of the Columbia Medical Society; served during World War I; at one time associated with the Rockefeller Sanitary Commission and the International Health Board; first health officer of Greenwood County; for many years affiliated with the Columbia Hospital; served as resident physician at the University of South Carolina; died in Varnville September 10, aged 61.

Edward Joseph Agnelly ✦ Detroit; Detroit College of Medicine, 1903; served during World War I; died September 5, aged 68, of bronchopneumonia.

Jacob S. Allen, Chester, S. C.; Leonard Medical School, Raleigh, 1902; died in Philadelphia September 20, aged 73.

Alton Louis Amsterdam, New York; University and Bellevue Hospital Medical College, New York, 1919; on the staffs of the Mount Sinai Hospital and the Beth Israel Hospital; died October 2, aged 49, of hypertensive cardiovascular disease and coronary occlusion.

Henry Thompson Bailey, Phoenix, Ariz.; Hospital College of Medicine, Louisville, Ky., 1903; fellow of the American College of Surgeons; on the staffs of St. Joseph's Hospital and the Good Samaritan Hospital, where he died September 16, aged 72, of carcinoma of the sigmoid.

Roy Frank Barker, Wood River, Ill.; Barnes Medical College, St. Louis, 1907; member of the American Medical Association; served during World War I; served as St. Clair County physician and coroner; died in Alton September 11, aged 61, of coronary thrombosis.

John Thomas Batte ✦ Covington, Ky.; Medical College of Ohio, Cincinnati, 1906; found dead in bed September 18, aged 62.

Nathaniel Morrel Benyas ✦ Honolulu, Hawaii; Northwestern University Medical School, Chicago, 1912; served as vice president of the Hawaii Territorial Medical Association; past president of the Honolulu County Medical Society; served during World War I; died in San Francisco September 7, aged 60.

Charles Willard Burnell, Bridgton, Maine; Baltimore Medical College, 1896; died September 13, aged 84.

John Thomas Carpenter, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Medical Association and the American Ophthalmological Society; formerly lecturer in ophthalmology at his alma mater and on the staffs of the University Hospital and the Bryn Mawr (Pa.) Hospital; died in Radnor September 16, aged 79.

Benedetto Ciaffo, West New York, N. J.; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1902; died September 11, aged 73.

Irving Sherburne Cook, Georgiaville, R. I.; Harvard Medical School, Boston, 1886; member of the American Medical Association; for many years health officer; served on the town school committee and as town superintendent of schools; the Irving S. Cook School was named in his honor; died September 9, aged 88, of arteriosclerotic heart disease.

Lyman Driesbach ✦ Middleburg, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1908; past president of the Schoharie County Medical Society; at various times mayor of Middleburg; died September 3, aged 65.

Ellis Edwin Foster, New Bedford, Mass.; Tufts College Medical School, Boston, 1902; fellow of the American College of Surgeons; died in St. Luke's Hospital September 10, aged 74.

Joshua Francis Fraser, Memphis, Tenn.; Missouri College of Medicine and Science, St. Louis, 1929; member of the American Medical Association; served in France during World War I; died in St. Joseph's Hospital September 17, aged 53.

Ernest Sipe Gasteiger, Los Angeles; Jefferson Medical College of Philadelphia, 1927; member of the American Medical Association; lieutenant commander in the medical corps of the Naval Reserve, not on active duty; on the staff of the California Hospital; died in the Veterans Administration Facility, West Los Angeles, September 14, aged 46.

Jesse Hunnel Hazlett, Waynesburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1900; member of the American Medical Association; served during World War I; on the staff of the Greene County Memorial Hospital; died September 14, aged 73, of diabetes mellitus and coronary thrombosis.

Robert Lee Huddleston, Deatsville, Ala.; University of Georgia Medical Department, Augusta, 1890; member of the American Medical Association; formerly senator; died September 17, aged 82.

Harold Carl Joesting, Los Angeles; University of Minnesota Medical School, Minneapolis, 1929; member of the American Academy of Pediatrics; died September 18, aged 42.

Thomas Barnett Lewis Jordan, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1900; for many years medical examiner and company surgeon of the Pennsylvania Railroad; died in Atlantic City, N. J., September 5, aged 72.

Edward N. Kingsbury, Hamden, Conn.; Hahnemann Medical College of Philadelphia, 1880; died October 4, aged 93, of bronchopneumonia.

Charles Augustus Martin, Terry, Miss.; Mississippi Medical College, Meridian, 1910; served during World War I; died August 24, aged 66.

Josiah Libby Millett, Seattle; University of Minnesota College of Medicine and Surgery, Minneapolis, 1902; member of the American Medical Association; died in Edmonds August 27, aged 69.

Robert L. Moberly, Olathe, Kan.; Medico-Chirurgical College of Kansas City, 1900; member of the American Medical Association; died May 11, aged 74.

Lawrence Gray Patterson, Memphis, Tenn.; Meharry Medical College, Nashville, 1905; died August 31, aged 67.

Frederick Johnson Peck, Ansonia, Conn.; University of Michigan Homeopathic Medical School, Ann Arbor, 1892; died August 22, aged 79.

Nathan Avery Peyton, Hartsville, Tenn.; Meharry Medical College, Nashville, 1917; served during World War I; died in the George W. Hubbard Hospital of Meharry Medical College, Nashville, August 16, aged 59.

John W. Pickel, Kirkwood, Mo.; College of Physicians and Surgeons, Baltimore, 1884; member of the American Medical Association; honorary member of the Missouri State Medical Association; past president of the Jefferson County Medical Society, of which he had been an honorary member; died September 13, aged 91, of cardiac failure.

William H. Roberts ✦ Sheridan, Wyo.; Northwestern University Medical School, Chicago, 1901; formerly secretary of the Wyoming State Medical Society; past president of the Sheridan County Medical Society; on the staff of the Sheridan County Memorial Hospital; died July 25, aged 72.

Pleasant W. Rose, Cypress, Ill.; Barnes Medical College, St. Louis, 1899; died August 29, aged 69.

Thomas Andrew Roselle, Palmyra, Mo.; Hospital College of Medicine, Louisville, 1903; member of the American Medical Association; served during World War I; died in the Levering Hospital, Hannibal, September 7, aged 70, of myocarditis.

Alex Morton Rosenblum ✦ Youngstown, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1912; served during World War I; served on the staff of St. Elizabeth's Hospital; died September 6, aged 56, of myocardial infarction.

Carl August Samuelson ✦ Sheldon, Iowa; State University of Iowa College of Medicine, Iowa City, 1923; served during World War I; at one time affiliated with the Hull Hospital in Hull; died in St. Joseph Mercy Hospital, Sioux City, September 15, aged 53, of congestive heart failure following pneumonia.

Harmon Ulysses Sanders ✦ Carrollton, Miss. (licensed in Mississippi in 1904); died in Grenada August 16, aged 73.

Julius A. Schmidt, Milwaukee; Milwaukee Medical College, 1904; member of the American Medical Association; died September 11, aged 70, of carcinoma of the sigmoid.

Rudolph Schwarz, Brooklyn; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1914; served during World War II as medical consultant for one of the Selective Service boards in Bay Ridge and recently received a medal from the government for his five years' service; died in the Montefiore Hospital, New York, August 2, aged 59.

Jesse Evans Shull, Alpena, S. D.; Sioux City College of Medicine, 1898; member of the board of directors and for many years president of the Bank of Alpena; died in the Methodist Hospital, Mitchell, July 12, aged 77.

Elwood Shellenberger Snyder, Norristown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1896; served on the board of health in Lancaster, where he was on the staff of St. Joseph's Hospital; died August 17, aged 78.

Samuel Mott Souders ✦ Red Lodge, Mont.; Medical College of Ohio, Cincinnati, 1900; died August 29, aged 72.

John W. Speck, Jackson, Mich.; Detroit College of Medicine and Surgery, 1926; member of the American Medical Association; at one time affiliated with the Michigan State Prison Hospital in Jackson; on the staffs of the Mercy Hospital and the W. A. Foote Memorial Hospital, where he died September 8, aged 43, of pulmonary embolism.

Elmer S. Stambaugh, York, Pa.; College of Physicians and Surgeons, Baltimore, 1910; member of the American Medical Association; died July 18, aged 68.

Patricia H. Steen, Hempstead, N. Y.; University of Aberdeen Faculty of Medicine, Scotland, 1921; member of the American Medical Association and the American Psychiatric Association; specialist certified by the American Board of Psychiatry and Neurology, Inc.; consultant, Nassau Hospital, Mineola, where she died September 15, aged 47, of cerebral hemorrhage.

Newton Henry Stein ✦ Silver Creek, Pa.; Medico-Chirurgical College of Philadelphia, 1904; president of the Silver Creek State Bank; on the staff of the Good Samaritan Hospital, Pottsville; died in the Jefferson Hospital, Philadelphia, August 16, aged 69.

Aubon Earl Stewart, Los Angeles; Manitoba Medical College, Winnipeg, Man., Canada, 1913; member of the American Medical Association; died August 31, aged 59.

Frederick Bismarck Strauss ✦ Bismarck, N. D.; Rush Medical College, Chicago, 1901; in the Indian Service; died July 26, aged 67.

Joseph Lawn Thompson, Washington, D. C.; George Washington University School of Medicine, Washington, 1904; member of the American Medical Association; served on the faculty of his alma mater and the Georgetown University School of Medicine; formerly on the staff of the Providence Hospital and medical director of the Catholic University; died in the Washington Home for Incurables September 3, aged 72, of cerebral arteriosclerosis.

Walter Elbert Thorpe, Bristol, Conn.; New York Homeopathic Medical College, 1886; died August 20, aged 87.

John Samuel Turberville ✦ Century, Fla.; Medical College of Alabama, Mobile, 1902; member of the Southeastern Surgical Association; fellow of the American College of Surgeons; past president of the Florida Medical Association and the Escambia County Medical Society; medical superintendent of the Turberville Hospital; killed September 21, aged 71, when the automobile in which he was driving collided with a truck near Atmore, Ala.

Donald C. Urie ✦ Camas, Wash.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; affiliated with St. Joseph's Hospital in Vancouver; died July 9, aged 67.

Henry Palmerston Vaughan, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1897; died August 8, aged 81.

William Henry Walker, New York; Georgetown University School of Medicine, Washington, D. C., 1902; served as physician for the New York State Athletic Commission; died August 28, aged 67, of cerebral hemorrhage.

Thomas F. Walsh, Chicago; Chicago Medical School, 1917; died September 14, aged 57.

George Louis Weinstein ✦ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1906; died July 25, aged 73.

Timothy Daniel Welch, Collins, Miss.; University of Nashville Medical Department, 1905; died in the South Mississippi Infirmary, Hattiesburg, July 21, aged 68.

Daniel J. Williams, Gulfport, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1890; member of the American Medical Association, serving as a member of its House of Delegates in 1904 and 1905; past president of the Mississippi State Medical Association; secretary, Harrison-Stone Counties Medical Society; for many years county health officer; formerly member of the state board of health; director of the Claiborne County Health Department; died September 2, aged 78.

U. S. PUBLIC HEALTH SERVICE

Robert Henry Onstott ✦ Medical Director, U. S. Public Health Service, San Francisco; born in Colorado Springs, Colo., on Nov. 30, 1905; entered the public health service directly after graduating from the University of Colorado School of Medicine in Denver in 1930; served an internship at the U. S. Marine Hospital; accepted his original commission as assistant surgeon in the regular corps on July 1, 1933; his assignments have included hospital duty, nutrition research, county and state health department work and postgraduate training in public health and venereal disease control at Johns Hopkins University; from September 1940 to March 1942 was detailed as a technical adviser to the governor of Louisiana, aiding in the reorganization of the state health department; until proceeding to Hawaii, was assigned as liaison officer to the Fourth Army Command with headquarters in Atlanta; had just returned to this country after three years' service as director of the U. S. Public Health Service District number 10, with headquarters in Honolulu, Hawaii; in that capacity he acted as adviser to the governor of Hawaii and the Territorial Health Department in matters relating to public health administration; killed in an automobile accident near Auburn, Calif., September 4, aged 40, while en route to Washington, D. C., for reassignment as chief of the division of commissioned officers of the U. S. Public Health Service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 19, 1946.

The Mechanism of Headache

In a paper read at Guy's Hospital and published in its *Gazette*, Sir Charles Symonds pointed out that it is only in the last few years that we have had any clear idea of the mechanisms of headache. During operations on the head under local anesthesia we have had the opportunity of observing which structures are sensitive to pain. It has been found that all the tissues covering the cranium are pain sensitive, especially the arteries. The cranium itself is insensitive, so that after the periosteum has been stripped the skull can be drilled or sawn through without the patient being aware of any sensation except the noise. Of the intracranial structures most of the dura mater, all the pia-arachnoid and the brain substance are insensitive. The parts of the dura which are sensitive are those covering the base of the skull and the tentorium. Pressure on the latter causes pain referred to the brow on the same side. The falx, on the other hand, appears to be insensitive to pressure. Although the dura is insensitive except at the base, the larger arteries are everywhere insensitive. Thus crushing the middle meningeal artery causes pain. Traction on the walls of the large venous sinuses and their main tributaries also causes pain and so does traction on the large arteries at the base of the brain. Stimulation intracranially of the fifth, ninth, tenth and second cervical sensory nerves causes pain of appropriate distribution.

Another source of information is the experimental production of headache. The intravenous injection of 0.1 mg. of histamine causes in most subjects headache after one minute, reaching its maximum half a minute later and passing off in about ten minutes. It is of throbbing nature and generalized distribution. Within twenty seconds there is flushing of the face with fall of blood pressure lasting less than a minute, so that the headache begins when the blood pressure is returning to normal. It is known that histamine also causes dilatation of the arteries of the meninges and on the surface of the brain. This in turn leads to increased volume of the intracranial contents and a rise in the cerebrospinal fluid pressure. But not until this pressure has almost returned to normal does the headache begin. It cannot therefore be due to increased intracranial pressure. Further, it is relieved by raising the pressure either by compressing the jugular veins or by intracranial injection of isotonic solution of sodium chloride. This suggests that the headache is due to stretching of the arterial walls.

It has been shown that the headache of experimentally induced fever also can be temporarily relieved by artificially raising the pressure of the cerebrospinal fluid and that its onset is associated with increased amplitude of pulsation of the intracranial and intraspinal arteries. It thus appears that the headache of fever is due to abnormal stretching of the arterial walls. Since raising the intracranial pressure by injection of saline solution into the theca will relieve the headache, we may conclude that the arteries chiefly concerned are those within the skull.

The headache of migraine is throbbing, like that due to histamine or fever. The increased pulsation of the temporal artery on the same side led to observations which showed parallelism with the intensity of the headache. Ligation of the temporal artery has produced freedom from pain. Thus we are led to conclude that stretching of the arteries is the cause of the pain. The headache of arterial hypertension appears to be due to the same cause and the headache of intracranial tumor to traction on or displacement of pain sensitive intracranial structures.

BELGIUM

(From Our Regular Correspondent)

Sept. 20, 1946.

A Children's Hospital as a War Memorial

A Children's Hospital will be erected to perpetuate the memory of the allied soldiers who fell on the soil of Belgium for its liberation. A committee has been formed in Brussels under the best auspices with the intention of raising funds for the construction of the memorial. Rather than a monument of exclusively decorative nature, the committee has in mind an enduring and living monument dedicated to relieve the suffering of unfortunate children. No institution in our country is prepared to admit children with chronic diseases or convalescents from acute diseases. The institution which has been planned will be situated in Ostende facing the ocean. On each of the stones of the edifice will be engraved the name of a soldier who died in Belgium. The various pavilions will bear the names of army divisions that distinguished themselves in Belgium by deeds of valor.

Centennial of Van Beneden

The centennial of Edouard Van Beneden was celebrated at the University of Liége. Among those present were his children and other relatives, the civil authorities, delegations of the Royal Academy of Belgium, the Royal Academy of Medicine, the staff of professors, numerous guests and students. Van Beneden is memorialized especially for the creation of laboratories for everyday work and for research. He and his brother-in-law, Van Pair, then professor of pathologic anatomy, purchased with their own money the microscopes. It was only little by little that the government stepped in and extended the sphere of the laboratories to other faculties.

Professor Winiwater recalled the brilliant scientific career of Van Beneden, particularly his work on embryology, in which he demonstrated that each mature sex cell encloses only half the number of chromosomes typical of the species. The researches of Van Beneden justify classing him with the great biologists of all times and all countries.

Tuberculosis Control

The efforts which private organizations devoted to the campaign against tuberculosis for nearly thirty years were coordinated in 1929 when the Belgian National Organization for Defense Against Tuberculosis was founded. The executive committee, presided over by Dr. Derscheid, meets every month to assure contact between the different sections of the national organization, to discuss projects, establish liaison with the government, make assignments and arrange the budget, subsidies, and so on. The three organizations, formerly independent, became sections of the national organization each intended for a special activity: (1) general prophylaxis, (2) preservation of childhood and (3) treatment and cure.

The essential aim of the league is to fight tuberculosis by means of the dispensary, the program of which includes diagnosis, detection, domiciliary prophylaxis and social assistance; 130 dispensaries with 225 physicians and 254 visiting nurses belong to it or are affiliated with it. The preventoriums, because of their essentially prophylactic role, are connected with the league.

In the preservation of childhood against tuberculosis the program is to raise and protect against infection the offspring of parents whose tuberculosis is contagious. Its methods vary, since its care extends to children from birth to 14 years. Its program, being of a prophylactic nature, is closely allied to that of the League Against Tuberculosis.

The section on treatment and cure devotes its efforts to the treatment and prophylactic isolation of patients suffering from the different forms of tuberculosis. Thiry-two sanatoriums belong to it or are affiliated with it. They are situated in the

country, on the coast, and even in foreign countries. Certain of these establishments have a social service for work outside the sanatorium, in the homes of the patients.

There are attached to the national organization a technical service competent to construct buildings suitable to the program, a publicity service on prophylaxis, a service of publicity to stimulate the public to contribute funds to combat tuberculosis, a general accounting service and a medical library.

The organization of the national body is not as rigid as one might believe on the basis of this classification. Its different sections often combine their efforts. It is precisely in the role of coordinator that the national organization plays its most important part.

Medical Reserve Officers

A National Union of Medical Reserve Officers has been created under the presidency of Professor Debaisieux, who, in thanking his colleagues for responding to the appeal, emphasized that the new association ought to contribute to the organization of a superior health service. One of the principal aims of the association will be the creation of an atmosphere which will permit the health service of the army to function without friction. It is hoped that there will be close collaboration between military and civilian physicians, and it is desired that the faculties of medicine will collaborate in the instruction of the army health service.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Sept. 17, 1946.

The Inter-American Congress of Medicine

In the presence of President Eurico G. Dutra, the first Inter-American Congress of Medicine, organized by the National Academy of Medicine, was inaugurated on September 7, the Brazilian Independence Day. Dr. Ernesto S. Campos, minister of health and professor at the University of São Paulo, presided at the opening session, addressing the several hundred physicians present as delegates from the American republics, to welcome them in the name of the Brazilian government. Dr. Campos reviewed the brilliant history of the old Imperial Academy of Medicine, founded one hundred and six years ago under the patronage of Pedro II, the second and last emperor of Brazil. It is the same academy which called the lively meeting closed two days ago, destined to mark a milestone in the future history of cooperation among the physicians of our continent. The second speaker of the inaugural evening was Dr. Antonio Austregesilo, professor emeritus at the University of Rio de Janeiro and president of the academy, who thanked the delegates for accepting the invitation of the Brazilian physicians to initiate this series of inter-American meetings of practitioners of all the specialties of medicine. In his address Dr. Austregesilo outlined the biographies of some great Brazilian physicians of the past—Alvarenga, Silva Lima, Torres Homem, Saboia, Rocha Faria, Francisco de Castro, Fajardo, Sodré, Oswaldo Cruz, Miguel Couto and Chagas. He emphasized the contributions of the physicians of the Americas, declaring that the Brazilian practitioners had invited their colleagues in order to have the opportunity of discussing the most pressing medical subjects and to acquire the knowledge they can bring and thus benefit from the professional interchange of the sister republics. After Dr. Austregesilo's speech, the heads of the foreign delegations addressed the congress, stressing the same spirit of brotherhood. Sir Alexander Fleming, a special guest of the Brazilian government, was chosen by the academy as honorary president of the congress. The meeting brought together such other leading figures of the medical profession of the Americas as Malcolm T. MacEachern of Chicago, Col. Charles O. Bruce of the Headquarters Army Ground Forces, Washington, D. C., James A. Shannon representing the U. S. Public Health Service, Roland Klemme of St. Louis, representing the American College of Surgeons, Tracy Putnam, Ardzroony Packchanian of the University of Texas, Howard E. Snyder of Winfield, Kan., George R. Cowgill of New Haven, Conn., George Hoskins of Boston, George Baehr of New York, David Speroni, professor emeritus at the University of Buenos Aires, Gregorio Alfaro, president of the Argentine Academy of Medicine, Nicolas Romano and Mariano Castex of the University of Buenos Aires, Cecilio Romaña of the University of Tucuman, Argentina, Salvador Mazza of the Argentine Mission of Studies of Regional Diseases, Francisco Forteza, minister of health of Uruguay, Juan C. Plá and Rodolfo Tallice of the University of Montevideo, Uruguay, and Francisco Garcia of Lima, Peru.

The congress was divided into twelve sections, which, with their respective chairmen, were concerned with hospital organization and administration (Ernesto S. Campos), medical and racial problems of immigration to the Americas (Antonio Austregesilo), war medicine and surgery (Col. E. Marques Porto), prevention and treatment of cancer (A. F. Costa Jr.), endemic diseases of the Americas (H. C. Souza Araujo), nutrition and vitaminology (Waldemar Berardinelli), endocrinology (Luis Capriglioni), treatment and prevention of tuberculosis (Affonso MacDowell), neuropsychiatry (Deolindo Couto), hygiene and public health (J. Barros Barreto), clinical medicine (Henrique Roxo) and clinical surgery (Alfredo Monteiro). Some of the subjects presented and discussed were organization and administration of American hospitals (Dr. MacEachern), conveniences and inconveniences of immigration to the countries of the Western Hemisphere (Dr. David Speroni, Argentina), cross breeding is favorable to Brazilians (Dr. Arthur Ramos, Brazil), military-medical importance of infectious hepatitis (Dr. Bruce), limitations of penicillin therapy (Sir Alexander Fleming), use of convalescent serums in the Argentine army (Dr. R. Bejarano), early diagnosis of neoplasms of the prostate (Dr. George T. Pack, New York), nonosteogenic bone tumors (Dr. Amadeu Fialho, Brazil), present state of the campaign against cancer in Rio de Janeiro (Dr. Costa), bronchial cancer and emphysema (Dr. Castex), possible existence of human cases of American trypanosomiasis in the United States (Dr. Packchanian), the problem of leprosy in the state of São Paulo (Dr. Nelson S. Campos, Brazil), leprolin, a new therapeutic agent against leprosy (Dr. Souza Araujo), the soya bean in the diet (Dr. Afranio do Amaral, Brazil), thyrotoxicosis (Dr. Hoskins), statistical results of the treatment of thyrotoxicosis (Dr. Plá), some important aspects of nutrition (Dr. Cowgill), clinical epidemiologic and social significance of primary infection and reinfection in tuberculosis (Dr. Fernando Gomez, Uruguay), collective and individual diagnosis of pulmonary tuberculosis (Dr. M. de Abreu, Brazil), mortality from tuberculosis in Brazil (Dr. R. Paula Souza, Brazil), subclinic forms of pulmonary tuberculosis (Dr. Estevam Somogyi, Bolivia), treatment of facial neuralgia (Dr. Klemme), modern aspects of psychosomatic medicine (Drs. Mauricio de Medeiros and Flavio de Souza, Brazil), the encephalorachial fluid in cerebral abscesses (Drs. Plá, Schiaffino and Morquio, Uruguay), professional training for the practice of psychosomatic medicine (Dr. J. Leme Lopes, Brazil), penicillin therapy of neurosyphilis (Sir Alexander Fleming), encephalomyelodysplasia (Dr. Austregesilo), sanitary indexes of Uruguay (Dr. R. Cappeletti), inter-American cooperation in the campaign against venereal diseases in the Western Hemisphere (Dr. L. Campos Mello, Brazil), the campaign against tuberculosis with limited financial resources (Dr. Barros Barreto), BCG immunization in tuberculosis control (Dr. G. Sayago, Argentina) and aseptic gastrointestinal surgery (Drs. Jorge Grey, Brazil, and Abilio Reis, Oakland, Calif.).

Correspondence

PSYCHIATRY IN WORLD WAR II

To the Editor:—I believe that all medical officers who served in both World War I and World War II will agree that the percentage of psychiatric cases developing in the second war was far greater than the percentage developing in the first. This at first glance is rather surprising, especially in view of the fact that during World War II all inductees had psychiatric examinations the purpose of which was to weed out the prepsychiatric cases. This was not true in World War I.

What then is the reason for the seeming deterioration of our citizen soldiery between the two wars? Certainly there could not have been any fundamental change in the psychosomatic makeup of our people in a generation. I venture to suggest the following reasons for the increase in psychiatric cases (exclusive of definitely psychotic cases) in World War II over World War I:

1. Too much public emphasis on psychiatric conditions.
2. A change in our political philosophy.

So much has been written in both the lay and the medical press about psychoneurosis, neurasthenia and psychiatric conditions in general that it has set every one to thinking about these conditions and undoubtedly many men have tried to use them as a means of escaping service. Induction board examinations revealed the fact that many men deliberately answered questions during their psychiatric examinations with a view to being rejected. They took their cues from other men previously rejected for psychiatric reasons. In combat and in theater of operations hospitals there were also obvious cases of attempts to secure evacuation by feigning psychiatric conditions, the knowledge of how to make the attempts being based on experiences gained from other cases which had been similarly evacuated. All of which would seem to indicate that the role of psychiatry in war has been played up too much in the newspapers and other places. Possibly medical men have talked too much about it in public utterances. The question arises as to whether we would not have been better off if the psychiatric examinations and the consequent stress on psychiatric conditions had been eliminated. In the case of inductees, if, as would seem on the surface, there was a smaller percentage of psychiatric cases during World War I than during World War II, would we not have been better off during the latter conflict simply to have eliminated the definitely psychotic cases? I am not prepared to say that we would have been, but certainly the results with methods used during World War II were far from satisfactory, and a consideration of their revamping is highly in order.

I believe that a change in our political philosophy has affected the patriotism and sense of duty of a great mass of our citizens. The great bulk of the youth who fought World War II reached maturity during an unusual period in our history. They grew up during a depression period when the government was handing out favors of all sorts to great masses of citizens. They had been accustomed to accepting something from their government. This was something entirely new in American history. Previously the soundest thought of the best citizens led them to believe that the citizen owed something to his country, and not the country to the individual. During World War II we found many "psychiatric" patients feeling, and openly declaring, after having been through one "island" campaign that they had "done their share." Certainly too many of our citizens did not properly feel their obligation to their country. (I am not referring to the congenital no-goods who do not have the fundamental basic stuff ever to feel the proper obligation to anything—family, friend or, least of all, country.) My experience with the rank and file of our soldiers leads me to believe that there is nothing wrong with them basically any more than there has ever been. I do believe, however, that a changing political philosophy has had its effect in producing epidemics of "psychoneurosis."

This communication is not written as a criticism of any one but simply to stimulate further thought on one of the most important medical problems that developed during the war. I think it is obvious to every one that we have not yet the answer. All psychiatrists with whom I have talked agree that this is true. They have worked hard and done their best, but psychiatry is a young subject. The specialty will undoubtedly benefit from the experiences of the war. Never before has it been put to such a great test on such a vast scale. It will probably take years of statistical study to evaluate the successes and the failures. In the meantime, one wonders whether we should continue our present method of induction examinations. Would it not be better to drop the psychiatric induction examination entirely, except for the elimination of the definitely psychotic cases by a careful study of the institutional records of the prospective inductees? Possibly a common sense evaluation of the men made by internists would be more satisfactory than the present psychiatric examination. A great deal of the problem is palpably that of internists. Should they not shoulder the major responsibility and call in skilled psychiatrists only in doubtful cases? This would eliminate part of the present trouble, namely that of spreading the skilled psychiatrists so thin as to make them virtually ineffective. I am not proposing this in any way except to provoke discussion. Who knows the answer? No one concerned should be interested in any solution but the one that would bring the greatest good to the country as a whole. Possibly psychiatry is still too young for the great task that has been placed upon it. Possibly not. Certainly the records so far call for at least a new tactical alinement.

AMOS R. KOONTZ, M.D., Baltimore.

TUBERCULOSIS

To the Editor:—In a communication to THE JOURNAL, September 28, Dr. Röder stated that in 1920 he had set forth the same views on apical predilection in adult tuberculosis that had been discussed as a new theory in an editorial in THE JOURNAL of July 13.

A comparison of his paper (*Wien. klin. Wchnschr.* **33**:646 [July 15] 1920) with that published by me (*Am. Rev. Tuberc.* **58**:297 [April] 1946) and discussed in the editorial shows that the two theories have nothing in common. On the basis of data only recently established and obtained by those who catheterized the right ventricle and pulmonic artery, it could be pointed out that arterial flow must cease in the apical zone when adults are sitting or standing quietly. I suggested that this permitted accumulation of toxins and prevented normal quantities of phagocytes and antibodies reaching the apical zones. Dr. Röder, on the basis of rather questionable data, chiefly from plant physiology, concluded that "the function of cells is proportional to the hydrostatic pressure" on them, that "with the constitutionally low pressure in the pulmonary capillaries a decrease in vitality must be encountered" and that "the important factor in predisposition is a low capillary pressure." No reference to any of these points was made in my paper, and Dr. Röder made no reference to blood flow, lymph flow, antibodies or phagocytes—the factors with which my paper was concerned. Both papers referred to facts in pathology and physiology which had been common knowledge since the late nineteenth century, but they drew entirely different conclusions from these facts.

The theory Dr. Röder offered had never been accepted, and for obvious reasons. A 4 per cent difference in absolute pressure on the cells is the maximal possible in the pulmonary

capillaries—760 mm. of mercury at the apex and 760 mm. of mercury plus 30 mm. of mercury, the equivalent of 40 cm. of blood, at the base. If a lowering of the pressure by 4 per cent caused apical cells to be susceptible while those at the base were resistant, a change in altitude of 5,000 feet would make the entire lung far more susceptible than the apex at sea level. Yet the value of high altitude is generally conceded by those who treat tuberculosis.

Dr. Röder's "hydrostatic pressure on the cell theory" is not the same as that recently advanced to account for apical susceptibility. The recent theory is unproved, but it would be unfortunate to have it confused with older and discarded theories.

WILLIAM DOCK, M.D., New York.
Professor of Medicine, Long Island College of Medicine.

RADIUM POISONING

To the Editor:—In view of the devastating influence the atomic bomb might have on our civilization, I think the public should become acquainted with a study on radium poisoning which was made possible through financial aid from the American Medical Association. This was entitled "Experimental Radium Poisoning," by Maurice Rosenthal, M.D., and Edwin J. Grace, M.D., and dealt with bone marrow and lymph node changes in rabbits produced by oral administration of radium sulfate. It appeared in the *American Journal of the Medical Sciences* (**191**:607 [May] 1936).

Subsequent to the publication of this article there was an exhibit at the next annual session of the American Medical Association, dealing with the subject matter.

A therapeutic theory was held that it might be possible to produce, in an animal, deadly tissue damage from radioactive substance and then reverse this process and restore the animal to a healthy state. Ample evidence that this is impossible was given in the aforementioned article, which showed that the process is absolutely irreversible and that death invariably follows.

At the time this study was made, it was a very urgent clinical problem. One of the authors of this paper (E. J. G.) was interested in the approaching deaths of some patients suffering from radium poisoning, and at that time we were helpless to alter in any way this deadly phenomenon. It is well worth noting that now, ten years later, in spite of the great advances in medicine, especially in the field of antibiotics, nothing can be done to remove radioactive substances from body tissues.

The magnitude of the responsibility of the statesmen entrusted with the problems surrounding the atomic bomb demands very serious consideration of these clearly proved facts, and a plan of education should be instituted immediately to awaken the public to full realization that they cannot view indifferently this colossal missile of destruction.

EDWIN J. GRACE, M.D., Brooklyn.

PRIORITY FOR HYPERVENTILATION TEST

To the Editor:—In directing attention to the value of the hyperventilation test in my discussion of Lennox's article on Tridione in the Dec. 15, 1945 issue of THE JOURNAL, page 1074, it was my intention to establish Rosett's priority for having mentioned this test in 1918. The word Brain's should read Rosett's; the reference is *Brain* (**47**:293 [Aug.] 1924). I also directed attention to the previous use of caffeine in the treatment of petit mal seizures by Karger and others.

M. G. PETERMAN, M.D., Milwaukee.

BRITISH NATIONAL HEALTH INSURANCE

To the Editor:—It was with the greatest astonishment that I read in Dr. Edward Ochsner's evidence to the United States Senate Committee on Education and Labor (THE JOURNAL, August 3, p. 1150) his preposterous illustration of the methods of British National Health Insurance practice. He said "A prominent Chicago physician shortly before World War II visited a panel physician in England and went with him to see how he handled the waiting patient problem. As the doctors stepped into the waiting room the English physician said to the more than 40 patients seated there 'Will those of you who are troubled with headache please stand,' and 6 stood up. He then reached into his desk and took out six identical prescriptions and handed one to each of the 6 standing patients and dismissed them."

This is not the first time I have had occasion to protest against the misleading and inaccurate accounts given, evidently at second hand, by certain American doctors who are endeavoring to avert the introduction of any health insurance scheme into their own country by denouncing the British scheme. In the present instance Dr. Ochsner appears to have accepted as fact a story that must surely have passed round as a joke, and it is most deplorable that he should have repeated it in public as responsible evidence to a Senate committee. It is gross libel.

I can assure American readers that such methods are never adopted by British insurance practitioners and would indeed never be tolerated by patients or insurance committees. I challenge Dr. Ochsner to bring forward evidence to substantiate his allegations. If he cannot do so, I hope he will retract his statement, which has caused much distress to his British colleagues.

CHARLES HILL, Secretary,
British Medical Association.

[This letter was referred to Dr. Edward H. Ochsner, who replies:]

To the Editor:—I wish to say that the statement which I quoted before the Senate Committee on Education and Labor and which is criticized by the secretary of the British Medical Association was actually made by a then prominent Chicago physician.

EDWARD H. OCHSNER, M.D., Chicago.

DISTRIBUTION OF MOSQUITOES

To the Editor:—I suppose you have already received some communications regarding the paragraph on page 236 of THE JOURNAL, issue of September 28. In this paragraph it is stated that "there are no Anopheles mosquitoes in Ceylon, but there are Culex and Aedes mosquitoes." This, of couse, is entirely untrue as regards Anopheles, since Ceylon has a very rich anopheline fauna, described in a number of excellent monographs (H. F. Carter and others). It is now well established that malaria in Ceylon is transmitted chiefly by Anopheles culicifacies.

PAUL F. RUSSELL, M.D., New York.

To the Editor:—On page 236 of THE JOURNAL, September 28, is a statement to the effect that there are no Anopheles mosquitoes in Ceylon.

A casual perusal of Fauna of British India, Diptera, volume IV Anophelini, by Christophers, reveals twenty-six species of Anopheles, in Ceylon. There probably are more known by this time, because Christophers' book was published in 1933.

C. F. ADAMS, M.D., Jefferson City, Mo.
Director, Bureau of Laboratories, State
Division of Health of Missouri.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Physician's Liability to Child for Injuries During Childbirth.—The plaintiff, an infant, by her father sued for injuries alleged to have resulted from the malpractice of the defendant physicians at the time of her birth. The case was heard on defendants' motion for summary judgment in the district court of the United States for the District of Columbia.

The question raised by the motion, said the court, is "whether an infant through its father and next friend has a right of action springing from the alleged fact that it was taken from its mother's womb through professional malpractice, with resultant consequences of a detrimental character." This is a novel question in this jurisdiction, the court continued, and judicial opinion, in those jurisdictions where it has been met, has held that at common law, in the absence of statute, prenatal injury affords no basis for an action in tort, in favor either of the child or of its personal representative. This conclusion is predicated, it appears, on the assumption that a child en ventre sa mere has no juridical existence and is so intimately united with its mother as to be a "part" of her and as a consequence is not to be regarded as a separate, distinct and individual entity. This doctrine was announced by Mr. Justice Holmes in the case of *Dietrich* v. *Inhabitants of Northampton,* 138 Mass. 14 (1884), which apparently has been relied on as dispositive and controlling ever since, except in those few cases in which recovery was barred on the theory of no contract and therefore no duty. In this opinion Justice Holmes said:

> Taking all the foregoing considerations into account, and further, that, as the unborn child was a part of the mother at the time of the injury, any damage to it which was not too remote to be recovered for at all was recoverable by her. . . .

Here, however, the court pointed out, we have a viable child —one capable of living outside the womb—and which has demonstrated its capacity to survive by surviving—are we to say now it has no locus standi in court or elsewhere? From the point of view of the civil law and the law of property, a child en ventre sa mere is regarded as a human being from the moment of conception—which it is in fact. Why a "part" of the mother under the law of negligence and a separate entity and person under the law of property and crime? Why a human being under the civil law and a nonentity under the common law? It has, if viable, its own bodily form and members, manifests all the anatomic characteristics of individuality, possesses its own circulatory, vascular and excretory systems and is capable now of being ushered into the visible world. In a Canadian case in which a woman seven months pregnant was descending from a tram, when, as the result of the negligence of the operator, she was thrown to the street and two months later gave birth to a child with club feet (*Montreal Tramways* v. *Leveille,* 1933, 4 Dom. L. R. 337) the court said:

> If a child after birth has no right of action for prenatal injuries, we have a wrong inflicted for which there is no remedy, for, although the father may be entitled to compensation for the loss he has incurred and the mother for what she has suffered, yet there is a residuum of injury for which compensation cannot be had save at the suit of the child. If a right of action be denied to the child it will be compelled, without any fault on its part, to go through life carrying the seal of another's fault and bearing a very heavy burden of infirmity and inconvenience without any compensation therefor. To my mind it is but natural justice that a child, if born alive and viable should be allowed to maintain an action in the courts for injuries wrongfully committed upon its person while in the womb of its mother.

The logic of this position, said the district court, is unassailable. The absence of precedent should afford no refuge to those who by their wrongful act, if such be proved, have invaded the right of an individual—employed as the defendants were in this case—to attend, in their professional capacities, both the mother and the child. And what right is more inherent, and more sacrosanct, than that of the individual in his possession and enjoyment of his life, his limbs and his body? That a right of action in cases of this character would lead to others brought in bad faith and might present insuperable difficulties of proof—a premise with which I do not agree—is no argument. The law is presumed to keep pace with the sciences and medical science certainly has made progress since 1884. The defendants' motion for summary judgment was therefore denied.—*Bonbrest v. Kotz, 65 F. Supp. 138 (Dist. of Col., 1946).*

Medical Motion Pictures

FILM REVIEW

Continuous Spinal Analgesia in Caesarean Section. By John C. Ullery, M.D., Philadelphia, with the aid of Norris W. Vaux, M.D., Clifford B. Lull, M.D., and Robert A. Hingson M.D., Surgeon, U. S. P. H. S. 16 mm. Color, silent, 1,008 feet (3 reels), showing time forty-two minutes. Produced in 19[illegible] at the Philadelphia Lying-In Hospital By Mervin W. La Rue. Procurable from Abbott Laboratories, North Chicago, Ill.

This film illustrates clearly the proper technic of continuous spinal analgesia in clinical cesarean section. The reactions of the average patient undergoing this procedure are also well illustrated. The photography is excellent. A few animal experiments are included showing the value of continuous spinal analgesia over the single injection technic. These would be of more value if captions were included explaining these views more clearly.

That the use of small divided doses of drugs for spinal analgesia is far superior to the single large injection technic is a well established fact. This film properly illustrates the value of this technic for cesarean section in the good risk patient. The choice of any spinal analgesia technic for cesarean section depends entirely on the condition of the patient, and this fact should be stressed by additional captions explaining the need for the adequate employment of fluids, plasma or blood to correct dehydration, exhaustion or shock from hemorrhage before any spinal analgesia can be attempted. Other definite contraindications to any spinal analgesia should also be stated. The value of oxygen administration during spinal analgesia, particularly when intercostal activity is decreased in addition to the decreased vital capacity of the woman at term, should be included. The blood pressure, pulse, respiration and general reaction of any patient under spinal analgesia need as careful watching as under any inhalation or intravenous anesthesia.

This film is of definite value in teaching students, anesthesiology residents and obstetricians the proper technic for continuous spinal analgesia for cesarean section. Additions to the text, as suggested, would increase the safety of this procedure.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Nov. 2, page 536.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part II.* Dec. 16-17. *Part III.* Boston, Nov. 19-21. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* Los Angeles, 2d week in April. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY & SYPHILOGY: *Oral.* Cleveland, Dec. 5-7. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF NEUROLOGICAL SURGERY. Applications for examination will be accepted until Feb. 15. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. All Groups. Parts I and II.* New York, June 1947. Final date for filing application is Dec. 1. Chicago, October 1947. Final date for filing application is March 1. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF PEDIATRICS: Pittsburgh, Nov. 10-12, Boston, Dec. 13-15. Sec, Dr. Lee F. Hill, 3309 Forest Ave, Des Moines.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February 1947. Final date for filing application is Nov. 15. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

72:1-136 (July) 1946

War Comes to Pediatrics: Presidential Address. C. A. Aldrich.—p. 1.
Resistance of Cotton Rats to Virus of Poliomyelitis as Affected by Intake of Certain Purified Vitamins and by Sex. H. M. Weaver, with technical assistance of Rose Fucinari and Nina Kehrer.—p. 6.
Celiac Syndrome: IV. Chemotherapy in Infections of Respiratory Tract Associated with Cystic Fibrosis of Pancreas; Observations with Penicillin and Drugs of Sulfonamide Group, with Special Reference to Penicillin Aerosol. P. E. A. di Sant'Agnese and Dorothy H. Andersen.—p. 17.
*Id.: V. Genetics of Cystic Fibrosis of Pancreas with Consideration of Etiology. Dorothy H. Andersen and R. G. Hodges.—p. 62.
Congenital Duodenal Obstruction: Roentgen Diagnosis by Insufflation of Air. H. Z. Mellins and Doris H. Milman.—p. 81.
Role of Psychiatry in Children's Hospital Service: Account of Experiment in Integrating Psychiatry and Pediatrics in Inpatient Service. M. J. E. Senn.—p. 95.

Celiac Syndrome: Genetics of Cystic Fibrosis of Pancreas.—Cystic fibrosis of the pancreas was found to occur among siblings, twins and more distant relatives with a distribution which is compatible with the hypothesis that it is carried as a relatively infrequent hereditary trait. This conclusion was based on 48 cases in which the history of the sibling was known and on family pedigrees in 20 of these cases and also on 56 cases in the literature in which information as to siblings is given. Although the incidence among siblings approximates the 25 per cent expected of a mendelian recessive trait, the distribution of the cases in families suggests that the disease, although hereditary, requires more than one factor for its expression. This hypothetical factor is as yet unknown. The lesion in the pancreas is not a malformation in the true sense of the word but appears in the latter part of pregnancy. It probably results from an abnormality of the acinar secretion. A comparable disturbance is also found in the liver, the gallbladder and the intestine and possibly in other glands. The congenital intestinal obstruction often associated with pancreatic fibrosis is probably the result of failure of pancreatic function, with secondary changes in the meconium, often complicated by volvulus or congenital peritoneal adhesions. The latter two conditions frequently tend to distract attention from the meconium ileus. There is evidence that the pulmonary lesion begins after birth and is primarily the result of nutritional deficiency.

American Journal of Hygiene, Baltimore

44:1-182 (July) 1946. **Partial Index**

Q Fever in the Mediterranean Area: Report of Its Recurrence in Allied Troops. F. C. Robbins and C. A. Ragan.—p. 6.
Epidemics of Q Fever Among Troops Returning from Italy in the Spring of 1945. M. Feinstein, R. Yesner and J. L. Marks.—p. 72.
*Identification and Characteristics of the Balkan Grip Strain of Rickettsia Burneti. Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina. J. H. Dingle and others.—p. 110.
Laboratory Outbreak of Q Fever Caused by Balkan Grip Strain of Rickettsia Burneti. Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina. J. H. Dingle and others.—p. 123.
Identification of Q Fever in Panama. G. Cheney and W. A. Geib.—p. 158.
*Q Fever: Immunologic Comparison of Strains. N. H. Topping, C. C. Shepard and R. J. Huebner.—p. 173.

Agent of Balkan Grip a Strain of Rickettsia Burneti.—In May 1945 the Commission on Acute Respiratory Diseases received specimens of guinea pig blood containing a fever inducing agent from Caminopetros of the Institut Pasteur Hellenique. Caminopetros had isolated the agent by inoculating guinea pigs with the blood of a patient during an outbreak of respiratory disease in Athens. He had maintained it for about thirteen months by serial passages in guinea pigs. The only response of the animals to inoculation was fever. Blood taken from the animals during the febrile period contained the agent. The guinea pigs were susceptible to infection by the intramuscular, intracranial and intranasal routes and by direct injection into the lung. The observations of Caminopetros were confirmed by the commission. It was found that the agent grew well in embryonated hen's eggs, that it could be visualized as minute pleomorphic rods and that intracellular inclusions consisting of masses of the organisms occurred in the organs of the infected mice. Its pathogenicity for human beings was demonstrated by the development of 16 cases of laboratory infection. Confirmation of its identity as a strain of Rickettsia burneti was accomplished by means of serologic tests. Agglutination tests with an antigen prepared from the Balkan grip strain of R. burneti were used in studies of serums from outbreaks of Q fever and proved to be of value for the serologic diagnosis of the disease.

Immunologic Comparison of Strains of Q Fever.—Several strains of Q fever recently isolated from human cases of pneumonitis have been compared by Topping and his associates with one another and with known strains. The 6 strains used in these investigations were an Australian, an American, the Balkan grip agent, an agent isolated from the Fort Bragg laboratory outbreak, the Panama and the Henzerling strain isolated in Italy. It was found that complete reciprocal cross immunity occurs in guinea pigs. The immunologic relationships were studied by complement fixation and agglutinin absorption tests. These tests indicate similarity in immunologic specificity, although there were wide variations in the sensitivity of the antigens.

American Journal of Medical Sciences, Philadelphia

212:1-128 (July) 1946

Spermatogenic Activity of Δ^5-Pregnenolone and of Its Esters. G. Masson.—p. 1.
Testosterone in Angina Pectoris. E. B. Levine and A. L. Sellers.—p. 7.
Echinococcosis in Iceland. N. Dungal.—p. 12.
Traumatic Streptococcic Meningitis: Report of Case, with Recovery, and Review of Literature. M. Berk.—p. 18.
*Pneumonitis Occurring in Rheumatic Fever. G. C. Griffith, A. W. Phillips and C. Asher.—p. 22.
Selection of Patients with Arterial Hypertension for Treatment by Repeated Injections of Pitressin. J. Q. Griffith Jr., N. Padis and E. Anthony.—p. 31.
Reactions of Intravenously Administered Amino Acids (Casein Hydrolysates). H. H. Hecht.—p. 35.
Malarial Jaundice. A. G. Hills.—p. 45.
Purpura as Complication of Malaria. J. Shrager and B. H. Kean.—p. 54.
Blood Protein Tyrosine Reaction in Malaria, Acute Epidemic Hepatitis and Certain Other Diseases. W. B. Wartman and N. Shlimovitz.—p. 60.
Urinary Excretion of Methionine in Liver Disorder. F. Homburger.—p. 68.
Use of Molybdenized Ferrous Sulfate in Treatment of True Iron Deficiency Anemia of Pregnancy. E. R. Neary.—p. 76.
Effect of Methylxanthines on Prothrombin Time and Coagulation of Blood. D. Scherf and M. Schlachman.—p. 83.
Blood Levels of Penicillin After Various Forms of Oral Administration. L. D. Seager, W. G. Shoemaker and G. Wells.—p. 90.
Infectious Hepatitis. W. A. Sodeman.—p. 94.
Schizophrenia. A. J. Lubin.—p. 107.

Pneumonitis in Rheumatic Fever.—Griffith and his associates define pneumonitis as a manifestation of rheumatic fever characterized by an inflammatory process of lung and pleura, with an insidious onset, migrating consolidation and frequent pleurisy with or without effusion. They observed pneumonitis in 119 of 1,046 rheumatic fever patients at a naval hospital. The pneumonitis is of three types according to its time of appearance in the rheumatic fever state: primary acute, secondary acute and subclinical. The diagnosis of pneumonitis of rheumatic origin is based entirely on the exclusion of the other types of pneumonia and the concomitant development of other manifestations of acute rheumatic fever. The laboratory aids are of little help in establishing the diagnosis. The rapid shift of areas of density in the roentgenogram, the rapid development of an effusion and the close adherence of the density to the bronchovascular markings are helpful in differentiating this condition. Pneumonitis is a serious manifestation of rheumatic fever activity.

American Journal of Medicine, New York

1:105-212 (Aug.) 1946

Metabolic Changes Induced by Synthetic 11-Dehydrocorticosterone Acetate, Including Comparative Studies with Synthetic Desoxycorticosterone Acetate, Natural 17-Hydroxycorticosterone and Lipoadrenal Cortex (Preliminary Report). P. H. Forsham, G. W. Thorn, Grace E. Bergner and K. Emerson.—p. 105.
11-Dehydrocorticosterone: Its Effects on Hypoadrenalism in Man. G. A. Perera, D. W. Blood and Kathryn H. Reinhold.—p. 135.
Primary Systemic Amyloidosis. H. N. Eisen.—p. 144.
*Relation of Cardiac Enlargement to Hypertension in Acute and Chronic Glomerulonephritis. J. V. B. Dean.—p. 161.
Bronchogenic Carcinoma. L. F. Clerf and P. A. Herbut.—p. 168.
Experimental and Clinical Evaluation of Synthetic Antihistaminic Drugs. S. Friedlaender.—p. 174.
*Comparative Study of Treatment of Tularemia with Immune Serum, Hyperimmune Serum and Streptomycin. L. Foshay.—p. 180.

Relation of Cardiac Enlargement to Hypertension in Glomerulonephritis.—Dean points out that the incidence of cardiac failure in glomerulonephritis is high, but opinions still vary about the cause of cardiac enlargement and cardiac failure. He reports 3 cases of acute glomerulonephritis with persistent enlargement of the heart associated with little or no hypertension and 3 cases of chronic glomerulonephritis with persistent hypertension but with little or no increase in heart size above the normal range of cardiothoracic ratio until shortly before death. He concludes that cardiac enlargement occurring in acute glomerulonephritis may persist for many years after the acute attack without evidence of significant hypertension at any time. Hypertension occurring in chronic glomerulonephritis may be present for many years without evidence of significant cardiac enlargement as determined clinically. Thus the height of the blood pressure and size of the heart as determined clinically in glomerulonephritis may be completely unrelated.

Immune Serum, Hyperimmune Serum and Streptomycin in Tularemia.—Comparisons based on records from 832 patients who received immune serum, 60 who received hyperimmune serum, 9 who received streptomycin and 542 who received only symptomatic treatment reveal that treatment of tularemia patients with immune serum before the end of the second week of disease induced significant reductions in mortality and in all aspects of morbidity. Greater reductions in morbidity were effected by treatment with hyperimmune serum or streptomycin. Of the agents studied only streptomycin and hyperimmune serum reduced the mean duration of disease to less than 2.5 months if treatment was given later than the second week. A comparative study of therapy to recovery intervals indicated that the nature of the disease imposed limits on the results obtainable by all forms of therapy. It indicates also that future comparisons should demonstrate a superior effectiveness of streptomycin in diminishing morbidity, and, since it is already shown to be a better agent for treatment of the desperately ill patient, that streptomycin will become the treatment of choice for tularemia.

American Journal of Ophthalmology, Cincinnati

29:929-1070 (Aug.) 1946

Mustard Gas Burns of Human Eyes in World War II. G. I. Uhde.—p. 929.
Early Ocular Manifestations in Laurence-Moon-Biedl Syndrome. D. J. Lyle.—p. 939.
Plastic Eye Implant. A. D. Ruedemann.—p. 947.
Eye Examination in Differential Diagnosis of Disoriented Patient. B. Milder.—p. 953.
Ophthalmopedics. J. J. Kohout and A. Callahan.—p. 968.
Treatment of Uveitis Associated with Toxoplasmosis. A. C. Krause and L. F. Smith.—p. 977.
Exophthalmos Caused by Eosinophilic Granuloma of Bone. M. Wheeler.—p. 980.
Plastic Artificial Eye Program. S. F. Erpf, M. S. Wirtz and V. H. Dietz.—p. 984.
Methacrylic Resin Implant for Sunken Upper Lid Following Enucleation. H. S. Sugar and H. J. Forestner.—p. 993.
Charting Diplopia and Muscle Action. J. I. Pascal.—p. 1001.
*Streptomycin Treatment of Corneal Abscess Caused by Escherichia Coli. W. C. Owens.—p. 1007.
Reconstruction of Floor of Orbit: Case. I. Givner.—p. 1010.

Streptomycin in Corneal Abscess Due to Escherichia Coli.—A man aged 54 had a severe corneal abscess caused by Escherichia coli. Owens reports that the abscess continued to progress in spite of intramuscular and local application of penicillin and the oral administration of sulfamerazine. When on the seventh hospital day streptomycin became available, the local use of penicillin was discontinued and two drops of a solution containing 500 standard units of streptomycin per cubic centimeter were instilled into the right eye every hour during the day and night. In forty-eight hours definite improvement was evident. On the fifteenth hospital day the systemic use of penicillin and sulfamerazine was discontinued. At the same time, through a mistake in dilution, the concentration of the streptomycin instilled into the conjunctival sac was increased to 10,000 standard units per cubic centimeter. This concentration was used for one week, after which the original dilution containing 500 standard units per cubic centimeter was used again. During this period of increased dosage the eye continued to improve steadily. The local use of streptomycin was continued for twenty-three days. At that time the corneal abscess had healed and was replaced by an epithelized leukoma.

Archives of Surgery, Chicago

53:1-110 (July) 1946

*Cholecystitis with Perforation. G. A. Johnstone and J. E. Ostendorph.—p. 1.
Removal of Shell Fragment from Left Ventricle of Heart: Report of Case. W. B. Schaefer and V. P. Satinsky.—p. 13.
Reconstructive Otoplasty: Further Observations; Utilization of Tantalum Wire Mesh Support. P. W. Greeley.—p. 24.
*Blocking of Splanchnic Nerves and First Lumbar Sympathetic Ganglion: Technic, Accidents and Clinical Indications. A. de Sousa Pereira.—p. 32.
*Pulmonary Suck and Blow as Respiratory Analeptic: Interdependence of Cardiac Massage and Suck and Blow Resuscitation. J. Reicher.—p. 77.
War Wounds of Arteries. R. Warren.—p. 86.
Glomus Tumors (Angioneuromyomas): Clinical and Pathologic Report of Unusual Case. H. Jackson and Ruth Balkin.—p. 100.
Migratory Polyphlebitis. B. J. Ficarra.—p. 105.

Cholecystitis with Perforation.—Johnstone and Ostendorph found 32 instances of perforation of the gallbladder in a review of 12,000 consecutive routine necropsies done at the Los Angeles County Hospital, or approximately in 1 out of every 375 cases coming to necropsy. Its true incidence places the acutely diseased gallbladder high on the list of potentially fatal conditions as found in acute conditions within the abdomen. The dangers of so-called medical, or conservative, treatment of acute cholecystitis are emphasized. Once the diagnosis of acute cholecystitis is made, particularly in patients past 50, surgical intervention should take place as early as is consistent with adequate preparation. Interval cholecystectomy should be done in cases of recurrent chronic cholecystitis. Operation within forty-eight hours, employing cholecystectomy, is regarded as the effective means of lowering the mortality in acute cholecystitis. A mortality rate of 2.9 per cent for patients operated on within forty-eight hours compares favorably with the findings of other proponents of early operation. Early surgical intervention will lower the mortality from acute perforated cholecystitis just as surely as it has lowered the mortality from acute perforative appendicitis. The results in 105 cases of acute cholecystitis in which operation was performed show that mortality increases in proportion to the time of operative delay.

Blocking of Splanchnic Nerves.—De Sousa Pereira's report covers more than a thousand anesthetic blocks of the splanchnic nerves or of these nerves and the first lumbar sympathetic ganglion. Of the two routes of approach available for blocking the splanchnic nerves, the posterior approach was employed routinely in these investigations. When repeated anesthetic blocks were indicated, the needle was inserted not always at the same point but at different points in an area determined according to the topography of the splanchnic nerves and the first lumbar ganglion in relation to the skeleton. Encouraging results were obtained in the diagnosis and treatment of patients with cardiospasm, visceral pain and peptic ulcer. Single or repeated anesthetic blocks of the splanchnic nerves and first lumbar ganglion were tried in cases of paralytic ileus, megacolon and hypertension and in the postoperative period of abdominal operations as a method of diagnosis or treatment or as a test before splanchnicectomy. The results observed point out the clinical importance of anesthetic block of the splanchnic nerves and the first lumbar ganglion.

Interdependence of Cardiac Massage and Suck and Blow Resuscitation.—Reicher presents the results of studies supplementing those made by Thompson and Birnbaum, who have shown that alternating suction-inflation causes a reflex stimulus to respiration. A series of preliminary experiments were performed for the purpose of studying the lungventilator apparatus and to determine the value of suction and suck and blow in resuscitation. Reicher stresses that while the importance of combining cardiac massage with pulmonary ventilation in resuscitation have been demonstrated by Coryllos and by Thompson and Birnbaum, his experiments indicate that such a combination would frequently be inadequate if the pulmonary measures consisted in either pressure or suction used alone. The clinical implications are that suck and blow is the ventilation of choice when combined with cardiac massage. Both cardiac and respiratory stimulation should be used in asphyxia. Either alone is often ineffective. Unlike pressure, suction exerts a stimulatory effect on respiration, as indicated by the inspiratory gasp caused by a suction stroke. No such effect is noted with manual artificial respiration.

Bulletin of Johns Hopkins Hospital, Baltimore

79:1-96 (July) 1946

Effect of Penicillin in Experimental Intestinal Obstruction: Studies on Strangulated Low Ileal Obstructions. A. Blain and J. D. Kennedy. —p. 1.
*Intestinal Obstruction: Study of 204 Acute Cases with Reference to Possible Efficacy of Antibacterial Therapy. R. J. Calihan, J. D. Kennedy and A. Blain III.—p. 21.
Location of Conscious Center in Brain: Corpus Striatum. W. E. Dandy.—p. 34.
Studies on Altitude Tolerance: 1. Studies on Normal Rats—Effect of Repeated Short Exposures to Reduced Atmospheric Pressure. G. W. Thorn, M. Clinton Jr., S. Farber and H. W. Edmonds.—p. 59.
Id.: 2. Studies on Normal Human Subjects—Effect of Repeated Short Exposures to Reduced Atmospheric Pressure. M. Clinton Jr., G. W. Thorn and Virginia B. Davenport.—p. 70.

Intestinal Obstruction.—Calihan and his associates investigated the clinical and necropsy records of the patients who have been treated surgically for acute mechanical intestinal obstruction of the small bowel at the Johns Hopkins Hospital for the ten year period 1936-1945. Complete obstruction was proved at operation in all cases, as evidenced by distended loops above and collapsed loops below the site of the lesion. Of 204 cases reviewed 116 were simple mechanical obstructions, 27 were cases of volvulus, 35 were cases of internal hernia and 26 were cases of intussusception. There were 41 deaths, a mortality rate of 20 per cent. By excluding the cases in which death was not due directly to the intestinal obstruction (death due to cardiac failure, pneumonia, aspiration and death during spinal anesthesia) the corrected mortality rate was 15 per cent. Peritonitis was the greatest single cause of death, accounting for 55 per cent of the fatalities. The authors cite the experimental work of Blain and Kennedy, in which massive doses of penicillin prolonged the lives of dogs with strangulated obstruction, and the studies of Blain, Kennedy, Calihan and Harkins, in which such dogs could be cured by resection at a period which was twice the survival time of control dogs not treated with penicillin. This would seem to indicate that penicillin may serve a similar useful purpose in strangulated intestinal obstructions in man. Penicillin is suggested as an aid to sound surgical therapy and not as another adjuvant with which to temporize in the treatment of acute mechanical intestinal obstruction.

Journal of the Mount Sinai Hospital, New York

13:65-118 (July-Aug.) 1946

Myocardial Insufficiency. E. P. Boas.—p. 65.
*Electroencephalogram in Subarachnoid Hemorrhage. L. Greenstein and H. Strauss.—p. 76.
Lateral Decubitus Position in X-Ray Examination of Chest. S. Richman.—p. 83.
Combined Ileovesical and Sigmoidovesical Fistula Secondary to Diverticulitis: Case. A. Sabeti.—p. 86.
Essays on Biology of Disease. E. Moschcowitz.—p. 90.
*Massive Pulmonary Embolism: VIII. Based in Part on Study of 88 Fatal Cases. H. Neuhof and S. H. Klein.—p. 99.

Electroencephalogram in Subarachnoid Hemorrhage.—Greenstein and Strauss studied 29 cases of massive extravasation of blood into the subarachnoid space caused by rupture of a congenital or acquired arteriosclerotic aneurysmal dilatation of a cerebral vessel or provoked by trauma causing laceration of blood vessels. The diagnosis of subarachnoid hemorrhage was confirmed in all cases by the presence of blood in the spinal fluid. Eighteen patients presented only a meningeal syndrome clinically. Five patients showed focal as well as meningeal signs, 2 patients presented only focal signs and 4 patients presented neither focal nor meningeal signs. A correlation was found to exist between clinical cortical foci and focal abnormalities in the electroencephalograms. Neither the presence of blood in the spinal fluid nor the presence of meningeal symptoms bears any relation to the electroencephalogram. In all cases the degree of abnormality in the electroencephalogram showed a progressive diminution when repeated examinations were made at increasing intervals of time; this observation was not found as a rule in brain tumors, and it may offer an aid in the differential diagnosis between a bleeding cerebral tumor and a subarachnoid hemorrhage due to some other cause. No increase in the degree of electroencephalographic abnormality was noted in subsequent records, once the hemorrhage had ceased.

Massive Pulmonary Embolism.—Neuhof and Klein studied 88 fatal cases of massive pulmonary embolism. The factors producing death were obstruction of the pulmonary artery, asphyxia and heart failure. The fatal episode took place at any time during a medical illness (26 cases) or in the surgical postoperative period (62 cases). Of the 62 deaths in operative cases 21 occurred in the first week, 14 of these in the first few days. Only 26 were encountered in the second week, chiefly in the classic period of the eighth to the twelfth day. There was no dependable relationship between the degree, the location or the extent of the pulmonary embolus and the clinical picture. An operation always must be regarded as exploratory. A significant fact concerning the cases to be regarded as favorable for embolectomy was that the duration of life after the onset of symptoms was short in many. This is out of line with the protracted duration of life for which Trendelenburg's operation of pulmonary embolectomy has been advocated. Because of the criticisms of this operation the authors devised a transcardiac operation resting on the principle of noninterference with the pulmonary artery, the attempt being made to extract the thrombus by suction through an incision in the right ventricle. This operation was performed on an athlete aged 18 years. No thrombotic material was obtained from the main trunk of the pulmonary artery. The patient died fifteen minutes after the operation. Necropsy revealed that thrombi filled the right and left branches of the pulmonary artery. The operative procedure is simple and does not require a special team. The suction results in some measure of decompression of a right ventricle which is laboring unavailingly against the obstructing embolus and thus is a desirable feature, but the operation does not provide assurance that suction will engage the thrombus in the eye of the catheter or the end of a metal tube. Despite the fatal issue in the reported case, further attempts to extract a pulmonary embolus through the right ventricle appear justified.

Journal of Pediatrics, St. Louis

29:1-128 (July) 1946

Streptomycin in Treatment of Influenzal Meningitis. J. R. Birmingham, R. Kaye and Margaret H. D. Smith.—p. 1.
*Influenzal Meningitis: Report of 3 Cases Treated with Streptomycin and Sulfadiazine. S. Nussbaum, S. Goodman, C. Robinson and L. Ray.—p. 14.
*Tridione: Its Use in Convulsive and Related Disorders. M. A. Perlstein and M. B. Andelman.—p. 20.
Comparison of Vitamin C in Mothers and Their Newborn Infants. L. B. Slobody, R. A. Benson and Joan Mestern.—p. 41.
Diagnosis and Management of Severe Infections in Infants and Children: Review of Experiences Since Introduction of Sulfonamide Therapy. V. Staphylococcal Empyema: Importance of Pyopneumothorax as Complication. G. B. Forbes.—p. 45.
Bilateral Renal Agenesis. Edith L. Potter.—p. 68.
Laboratory and Clinical Criteria of Rheumatic Carditis in Children. L. M. Taran.—p. 77.
Immunization Against Whooping Cough. J. H. Lapin.—p. 90.
Craniopharyngiomas in Children. F. D. Ingraham and H. W. Scott Jr. —p. 95.

Streptomycin and Sulfadiazine in Influenzal Meningitis.—Nussbaum and his co-workers administered streptomycin concurrently with sulfadiazine to 3 infants aged 9 months, 16 months and 15 months, in whom rapid recovery was obtained in the presence of severe influenzal infection of the meninges.

The streptomycin was used both intrathecally and intramuscularly with no evidence of toxicity or undue reactions. Recoveries were complete in all 3 cases with no evidence of damage to the nervous system. Fifty thousand micrograms of streptomycin was given intrathecally daily until spinal fluid cultures were negative and clinical improvement was definite. Fifty thousand micrograms of streptomycin was given intramuscularly every three hours until a total of 3 Gm. was given in each case. Sulfadiazine in large doses was also given. Although this small series does not warrant definite conclusions, the dramatic influence of streptomycin is significant in patients under 2 years of age when prognosis is poor even with the use of the other antibiotics.

Tridione in Convulsive Disorders.—Clinical experience with tridione over a period of sixteen months in 75 patients with convulsive and related disorders has left Perlstein and Andelman with the impression that it is the most effective drug yet employed in the treatment of petit mal. Its anticonvulsant effect in the control of grand mal attacks is not as great as that of diphenylhydantoin sodium, phenobarbital or the bromides. It may occasionally be of value as an adjuvant in the control of major attacks not adequately controlled by other drugs. It is more effective in idiopathic than in organic epilepsy. It is of value in reducing the tension or rigidity of patients with cerebral palsy. Of these, athetoids are benefited more than spastic children. It may be of value in the temporary control of children with behavior disturbances. It may be of value in the control of the convulsions and respiratory spasms of tetanus when given intravenously, but it is of no particular value in chorea, parkinsonism or dystonia musculorum. Tridione is a safe drug to use, since no permanent deleterious effects, addiction or tolerance were noted. Toxic symptoms are usually mild and consist of photophobia, visual blurring, dizziness and nausea. They occur more commonly in adults than in children and disappear promptly when the drug is withdrawn. Sudden stopping of the drug in epilepsy does not result in status epilepticus. When used in combination it is more effective with phenobarbital than with diphenylhydantoin. Chronic alcoholism increases tolerance to the drug. Since it is least effective in lesions of the pyramidal system and more effective in certain conditions with extrapyramidal lesions, it is suggested that its site of action is probably in the midbrain and/or areas in the basal nuclei and/or on the cortical connecting tracts of these areas.

New England Journal of Medicine, Boston

235:101-146 (July 25) 1946

*Treatment of Meningitis Due to Hemophilus Influenzae with Streptomycin: Report of 9 Cases. L. Weinstein.—p. 101.
New Experiences in Group Psychotherapy. C. Stein.—p. 112.
Ophthalmology. E. B. Dunphy.—p. 117.
Acute Fibrinopurulent Mediastinitis.—p. 136.
Empyema; Lung Abscess of Right Lower Lobe; Chronic Pneumonitis of Right Lower Lobe; Broncholiths, with Ulceration of Right and Left Bronchi.—p. 139.

Streptomycin in Meningitis Due to Hemophilus Influenzae.—Weinstein treated 9 cases of purulent meningitis due to type B Hemophilus influenzae in 7 and to an untypable strain in 2 with streptomycin, and complete recovery occurred in 7 cases. The drug was given intramuscularly in doses ranging from 15,000 to 125,000 units every three hours and intrathecally in amounts varying from 10,000 to 25,000 units every twenty-four hours. One of the two fatalities showed complete absence of response to the streptomycin. The other death was due to an intercurrent Staphylococcus aureus bronchopneumonia which was not affected by penicillin. The blood and spinal fluid were cleared of the causative organism in twenty-four to forty-eight hours in all cases except the 2 due to atypical strains. No relapses or sequelae of the influenzal meningitis were observed in the patients who recovered. There were no toxic reactions attributable to streptomycin in the nervous, hemopoietic or urinary systems. Two of the patients receiving streptomycin developed infections, in 1 meningitis and in the other bronchopneumonia (both with bacteremia) due to Staphylococcus aureus after they were completely free from H. influenzae. Careful watch must be maintained for early signs of this type of involvement. It is suggested that penicillin be used as soon as Staphylococcus aureus becomes the predominant organism in the nasopharynx, even before the evidence of invasion is present. Penicillin and streptomycin could be administered together from the time treatment is started. Streptomycin appears to be the drug of choice in the treatment of meningitis due to Hemophilus influenzae.

Philippine Medical Association Journal, Manila

22:1-42 (Jan.) 1946

Cobra Venom—Its Possibilities in Philippine Medicine. W. De Leon.—p. 1.
Symptomatology of Severe Ascaris Infestation. A. B. M. Sison and R. Rosales.—p. 7.
Modern Concepts in Diagnosis of Renal Tuberculosis. L. F. Torres.—p. 11.
Present Trends in Diagnosis and Treatment of Cancer. J. Z. Sta. Cruz.—p. 17.

22: 43-92 (Feb.) 1946

Monoamniotic Twins: Danger to Life of at Least One Twin. H. Acosta-Sison, G. T. Aragon and A. de la Paz.—p. 43.
Radiologic Finding in Syphilis of Rectum. P. S. Chikiamco.—p. 47.
Sixty-Two Consecutive Cases of Symphyseotomy. A. Baens.—p. 49.
Recent Experiences with Transurethral Urologic Surgery. L. F. Torres.—p. 58.

Public Health Reports, Washington, D. C.

61:1131-1170 (Aug. 2) 1946

*Epidemiologic Aspects of Sensitivity to Histoplasmin and Tuberculin. M. L. Furcolow, R. H. High and M. F. Allen.—p. 1132.
Tuberculosis Throughout the World: I. Prewar Distribution of Tuberculosis Throughout the World. Sarah E. Yelton.—p. 1144.

61:1171-1202 (Aug. 9) 1946

Analysis of Design and Performance of Airplane Exhaust Generators for Production of DDT Aerosols for Control of Anopheles Quadrimaculatus. C. W. Krusé and R. L. Metcalf.—p. 1171.
DDT in Paradichlorobenzene as Larvicide. H. A. Johnson and J. L. Eason.—p. 1185.

61:1203-1230 (Aug. 16) 1946

The United States Public Health Service Communicable Disease Center. J. M. Andrews.—p. 1203.
Time per Service in a Children's Dental Clinic. I. Altman.—p. 1211.

Epidemiologic Aspects of Sensitivity to Histoplasmin and Tuberculin.—Furcolow and his associates cite several recent reports which have shown that there is a close relationship between sensitivity to histoplasmin and pulmonary calcification. Early in 1945 an extensive study was begun in Kansas City, Mo., to determine the significance of age, sex, race, residence and socioeconomic, familial and other factors in the sensitivity to histoplasmin. Histoplasmin and tuberculin skin tests and chest x-rays were made on over 17,000 persons. It was found that the percentage of positive histoplasmin reactors among white persons is slightly higher than among Negroes, higher among males than among females, and higher among nonlifetime residents than lifetime residents. The percentage of positive tuberculin reactors is three times higher among Negroes than among white persons. Little difference was observed between males and females and between lifetime and nonlifetime residents. The frequency of pulmonary calcification is over twice as high among reactors to histoplasmin alone as among reactors to tuberculin alone. The frequency of calcification among those who reacted to neither test was very low, equaling 2.6 per cent. Among those who reacted to either tuberculin or histoplasmin there is a considerable increase with age in the occurrence of calcification.

Tennessee State Medical Assn. Journal, Nashville

39:231-270 (July) 1946

Precancerous Lesions of Rectum and Colon: Diagnosis and Treatment. O. C. Gass.—p. 231.
Radiologic Survey of Urinary Tract—Excretion Urography. R. A. Arens.—p. 237.
Tropical Medicine: Aspects of Significance to American Physician. V. H. Haas.—p. 241.
Inguinal Hernia. R. M. Pool.—p. 247.
Treatment of Pyogenic Infections of Central Nervous System. W. F. Meacham.—p. 252.

39:271-310 (Aug.) 1946

Influence of Mind in Producing Health and Disease. T. B. Wright.—p. 271.
Pruritus Ani. M. W. Holehan.—p. 282.
Surgery of Sympathetic Nervous System. E. T. Newell.—p. 287.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

19:301-348 (Aug.) 1946

Physicist in Radiodiagnostic Department. M. H. Jupe and L. A. W. Kemp.—p. 301.
Calcium Gluconate Injection into Muscle. J. W. McLaren.—p. 314.
Simple and Accurate Method for Localization of Intraocular Foreign Bodies. G. I. Scott and P. A. Flood.—p. 318.
"Milk of Calcium" or "Limy" Bile. J. A. G. F. Rose.—p. 323.
Note on Radiography as Aid to Beam Direction in Radiotherapy. H. G. Davies and M. Halberstaedter.—p. 326.
Effect of Extra Vitamin B Feeding on Rats Exposed to Weak Gamma Radiation. G. M. Scott.—p. 329.
Preparation of Radiosulfur (S^{35}) and Its Determination in Biologic Tracer Experiments. T. E. Banks.—p. 333.
Assessment of Dosage from Linear Radium Sources. R. G. Mitchell. —p. 339.
Computor for X-Ray Isodose Curve Production. J. H. Martin.—p. 343.

British Medical Journal, London

2:149-184 (Aug. 3)1946

Presidential Address: Medicine in Transition. H. Lett.—p. 149.
*Problems Arising from Use of Penicillin in Gonorrhea. R. C. L. Batchelor, W. H. Donald and M. Murrell.—p. 151.
Individual Resistance to Malignant Disease Illustrated by Case in Which Metastatic Deposit from Carcinoma of Breast Occurred in Appendix and Led to Perforation and Peritonitis. M. C. Oldfield.—p. 153.
Biliary Peritonitis Without Demonstrable Perforation. D. P. Burkitt. —p. 155.
Epidemic Pleuritic Pain: Review of 17 Cases in Miltiary Camp, India Command. J. Roche and F. G. Smiddy.—p. 157.
Case of Human Rabies in Sierra Leone. E. J. Wright and Minnie Gosden.—p. 158.
Amenorrhea at Stanley Camp, Hong Kong, During Internment. Annie Sydenham.—p. 159.

Penicillin in Gonorrhea.—Batchelor and his associates found that in 190 male and 55 female patients with gonorrhea a two injection scheme (twice 200,000 units) gave cure rates of 95.8 per cent and 90.9 per cent respectively. The dosage of penicillin used for gonorrheal infections may apparently delay the development of concomitant syphilis, and for this reason cases must be observed for at least six months. Failure of the two dose technic is not likely to produce resistance to penicillin. Routine irrigation is not necessary with penicillin treatment, but it may be tried if a urethral discharge persists for longer than three days. The two dose method, using saline solutions of sodium penicillin, is simple and easily applied.

Lancet, London

2:149-184 (Aug. 3) 1946

Visual Defects in Prisoners of War from Far East. H. E. Hobbs and F. A. Forbes.—p. 149.
*Intrathecal Streptomycin in Meningitis: Clinical Trial in Tuberculous, Coliform and Other Infections. H. Cairns, E. S. Duthie and H. V. Smith.—p. 153.
*Folic Acid in Treatment of Pernicious Anemia: Report of 5 Cases. J. F. Wilkinson, M. C. G. Israëls and F. Fletcher.—p. 156.
Benadryl in Hay Fever: Note on Its Action. D. Harley.—p. 158.

Intrathecal Streptomycin in Meningitis.—Cairns and his co-workers administered streptomycin intrathecally in meningitis due to organisms which have been shown to be sensitive to streptomycin in vitro and in laboratory animals. Streptomycin was given intrathecally in solutions of from 10,000 to 20,000 units per cubic centimeter of isotonic solution of sodium chloride. Seven cases of meningitis were treated, and preliminary tests were made on 2 persons with inoperable malignant brain tumor. All 3 cases of pyocyaneus meningitis, the case of influenzal meningitis and the 2 cases of tuberculous meningitis were fatal. The case of achromobacterium meningitis was the only one in which recovery occurred. These cases indicate that treatment of advanced pyocyaneus meningitis with intrathecal streptomycin is not likely to be effective. In meningitis of recent onset the results of streptomycin are less discouraging. In the achromobacterium infection there was prompt subsidence of infection after use of streptomycin. In the infant with Hemophilus influenzae infection streptomycin treatment was followed by decrease in the number of the organisms and by clinical improvement. Cerebral vascular thrombosis then developed, and the infection recurred. Doses of 80,000 to 100,000 units once or twice daily are probably necessary, and in acutely ill patients such injections are not free from danger. Injections should be given slowly, and a safety valve should be provided in the form of an indwelling ventricular catheter draining at a pressure of 200 mm. of water. Some of the untoward reactions may have been the result of impurities.

Folic Acid in Pernicious Anemia.—Wilkinson and his associates employed folic acid in the treatment of 5 patients with pernicious anemia. The patients had the typical uncomplicated clinical picture of relapsing pernicious anemia—megalocytic anemia, megaloblastic marrow and achlorhydria but no signs of neurologic involvement. They were either untreated or had had no effective treatment for some months. There was a preliminary control period of at least two weeks during which no treatment was given, the reticulocyte count remained low and red cells and hemoglobin did not show a rise. The folic acid produced clinical remissions, with return of the marrows to normoblastic from megaloblastic states, and a restoration of blood counts toward normal levels. The achlorhydria persisted. These results show that synthetic folic acid will bring about remissions in patients with true addisonian pernicious anemia, and the responses seem in every way comparable to those obtained with liver extracts. The dosage used, 20 mg. by mouth daily at first, reduced to 10 mg. when the remission is well advanced, appears to be minimal, and some patients may need more. In 1 case parenteral administration was highly successful.

Medical Journal of Australia, Sydney

2:37-72 (July 13) 1946

Tsutsugamushi Disease: Attempted Preparation of Prophylactic Vaccine from Fertile Hen's Eggs Experimentally Infected with the Virus. R. Lewthwaite, J. L. O'Connor and S. E. Williams.—p. 37.
*Penicillin Resistant Staphylococci in Wounds: Report Based on Study of 59 Cases of Infected War Wounds. E. A. North, R. Christie and B. K. Rank.—p. 43.
Care of Patients with Severe Asthmatic Attacks. C. Sutherland.—p. 51.
Monilial Vaginitis: Report of 58 Cases. Muriel B. McIlrath.—p. 54.
Laboratory Study of Monilia Albicans. Phyllis M. Anderson.—p. 57.

Penicillin Resistant Staphylococci in War Wounds.—The total number of patients investigated by North and his associates was 59, and from these 328 cultures of hemolytic staphylococci were isolated and tested. Analysis of the results shows that with regard to the penicillin fastness of staphylococci the cases fall into four groups: (1) those associated only with penicillin sensitive staphylococci in the wounds, 10 cases; (2) those in which penicillin resistant staphylococci replaced penicillin sensitive organisms during the period observed, 10 cases; (3) those associated only with penicillin resistant staphylococci in the wounds, 35 cases; (4) those in which penicillin resistant and penicillin sensitive strains alternated, 4 cases. Individual wounds were usually found to harbor staphylococci biochemically and serologically identical during the period of observation. After prolonged penicillin therapy the staphylococci recovered from the wound as judged by tests in vitro were almost invariably found to be penicillin resistant. This resistance in vitro did not affect the clinical response to penicillin. This depended on the nature of the wound and not on the behavior of the organism to penicillin in vitro. The term penicillin resistant staphylococci is a misnomer. It has been shown that they are not in themselves penicillin fast but elaborate a penicillinase which destroys penicillin. It seems unwise to conceive that in no circumstances would the presence of penicillin fast strains in lesions infected by staphylococci adversely affect the response to penicillin therapy. It has been shown that mice injected intraperitoneally with a certainly fatal dose of penicillinase producing staphylococci were not protected against death by large doses of penicillin, while other animals injected with a penicillin sensitive strain were saved.

Practitioner, London

157:81-160 (Aug.) 1946

Malaria Patient. B. Maegraith.—p. 81.
Amebiasis. W. H. Hargreaves.—p. 93.
Surgery in the Tropics. D. Fettes.—p. 101.
Heatstroke and Sunstroke. J. B. Kirk.—p. 107.
Skin Diseases in the Tropics. A. G. Fergusson.—p. 114.
Social Medicine in the Tropics. W. H. Kauntze.—p. 123.
Rheumatic Symptoms in General Medicine. A. Abrahams.—p. 131.
"Mushroom" Poisoning. C. A. Birch.—p. 135.
Early Recognition of Disease: VIII. Nonspecific Arthritis in Adults. G. R. P. Aldred-Brown.—p. 141.

L'Algérie Médicale, Alger

pp. 203-306 (May-June) 1946

*Heart and Beriberi: Clinical, Electrocardiographic and Roentgenologic Study Based on 100 Personal Observations. J. Casanova.—p. 203.
Biopsy of Uterine Mucosa in Gynecologic Practice. P. Laffargue. —p. 225.
Sulfonamide Therapy for Pulmonary Abscess. R. Raynaud, A. Huguenin and J. R. d'Eshougues.—p. 233.

Heart and Beriberi.—Casanova studied 100 cases of dry beriberi during an epidemic outbreak among Senegalese troops in Tunisia in 1940. The patients presented severe cardiac disorders resulting in death in inveterate cases of several months' duration, while in cases of wet beriberi the same cardiac manifestations but in a lesser degree, masked and occasionally attenuated, were amenable to treatment. There was a decided increase in pulse rate, with more than 100 beats per minute. Administration of digitalin increased the pulse rate and the discomfort of the patients, thus serving as a test for beriberi. Orthodiagrams revealed cardiac enlargement, particularly of the right portion, and violent throbs of the aorta and particularly of the pulmonary infundibulum. Electrocardiographic records showed a flattened P wave, prolongation of the PQ interval, an enlarged rapid QRS complex, a diphasic T wave, and in lead 3 a pronounced change of the ventricular wave of excitation, which took the form of a W or a capital M. These changes appeared to be irreversible even in early cases of dry beriberi in which the clinical signs, particularly the tachycardia, subsided as a result of vitamin therapy. In inveterate cases of dry beriberi the irreversible cellular changes affect the power of the myocardium to contract, causing an intracardiac disorder of conduction. Disturbances of tension and of rhythm may also be present which are manifested by a rather uniform clinical picture of cardiovascular erethism. An out of balance state of the glucides-vitamins relationship increased by excessive and prolonged action of the heart is to be considered the cause of these disturbances.

Revista Médica de Chile, Santiago

74:315-376 (May) 1946

Differential Diagnosis of Various Forms of Jaundice: Clinical and Laboratory Study; Special Reference to Infectious Hepatitis and to Obstructive Jaundice. R. Armas-Cruz, E. Montero, J. Cabello and others.—p. 315.
*Serum Coagulation of Weltmann in Hepatobiliary Diseases. H. Ducci and M. Yaikin.—p. 322.
Surgical Treatment of Bronchiectasis. L. Langer and H. Salvestrini. —p. 328.
*Encephalocranial Traumatism: New Treatment of Cerebral Edema: Preliminary Report. E. Fuentes Besoain.—p. 340.
Hematologic Changes in Nephropathies. J. Bendek and E. del Campo O. —p. 345.
Chagas Disease in Bolivia: Preliminary Report. L. Ponce Caballero. —p. 349.

Serum Coagulation of Weltmann in Hepatobiliary Diseases.—Investigation of the Weltmann coagulation band on 70 persons who were apparently healthy revealed that only about 75 per cent of them presented a normal coagulation band. Studies on 13 patients with localized hepatic processes revealed considerable variations which only in certain cases could be ascribed to the primary disorder. In the diffuse hepatic processes there existed a tendency toward an enlargement of the coagulation band. This enlargement was most noticeable in 48 of 62 cases of hepatic cirrhosis. The fact that only 3 of the patients with hepatic cirrhosis had a shortened coagulation band and that in these there existed processes which would explain the shortening (Hodgkin's disease, pregnancy and fibrocaseous tuberculosis) indicates that in case of shortening of the coagulation band the diagnosis of hepatic cirrhosis should be doubted. In cholecystitis the results are extraordinarily variable and permit neither diagnostic nor prognostic conclusions. Weltmann's coagulation reaction is of no special value in hepatobiliary disorders and does not deserve being included in the laboratory study of these conditions.

New Treatment of Cerebral Edema.—Fuentes Besoain used Schemm's method, which consists of an acidotic diet without chlorides and the administration of large quantities of fluid in the treatment of posttraumatic cerebral edema. He has used this treatment in more than 20 cases, of which 2 are reported. Consciousness returns more rapidly with this than with other treatments. Diuresis begins to increase from twelve to twenty-four hours after the treatment is begun and a decrease in headache and nausea accompanies the augmentation in diuresis. The psychologic condition of these patients is much better than when the water intake is limited. The treatment is usually continued for three or four days after the subjective symptoms have disappeared. Total recovery usually requires between six and twelve days.

Nordisk Medicin, Gothenburg

30:799-866 (April 12) 1946. **Partial Index**

Bronchoscopy as Diagnostic and Therapeutic Aid in Various Pulmonary Disorders. K. G. Rimér.—p. 799.

Hospitalstidende

*Acute Anterior Poliomyelitis in Pregnancy. P. Horstmann, J. Ipsen and H. C. A. Lassen.—p. 807.
Broncholithiasis. K. Bech.—p. 810.

Hygiea

Five years of Specific Therapy of Thrombosis in Sweden. E. Jorpes. —p. 813.
Schaumann's Disease and Relation to Pancreatic Disturbances. C. Ekelund.—p. 817.
Nonviable Infants Treated with Massive Dose of Vitamin D Without Demonstrable Organic Injuries. K. Palmén.—p. 820.

Svenska Läkaresällskapets Förhandlingar

Exogenic Disturbances in Rhythm. H. Holmgren.—p. 826.
Pathogenesis of Cirrhosis of Liver. C. G. Ahlström.—p. 832.
Pathophysiology of Cirrhosis of Liver. B. Josephson.—p. 835.
Mental Diseases and Community. Hakon Sjögren.—p. 843.

Poliomyelitis in Pregnancy.—Horstmann and his associates state that of the 62 women aged between 20 and 34 with poliomyelitis treated in Blegdam Hospital during the 1944 poliomyelitis epidemic in Copenhagen 20 were pregnant; 15 were in the first half of the pregnancy. Three of these patients died in the acute stage of the disease, abortion occurred in 4 and the infant died shortly before or after delivery in 2 instances, while 11 children were born, all of whom developed normally after birth. Since the frequency of pregnancy in poliomyelitis here is about three times as high as might be expected from the birth rate of the population at the time, mere coincidence seems unlikely. No corresponding accumulation of cases of pregnancy in poliomyelitis has previously been observed at the hospital. No satisfactory explanation of the phenomenon was found. The increased incidence of poliomyelitis in adult age in recent years probably explains the susceptibility to poliomyelitis in pregnancy. In the 1943 poliomyelitis epidemic in Bleking 21 of the 53 women between 19 and 47 affected were pregnant (Dhunér, *Nord. Med.* **24**:2187, 1944).

30:867-922 (April 18) 1946. **Partial Index**

Amino Acids and Plasma Proteins: Review. J. Bock.—p. 867.

Hospitalstidende

*Heredity of Osteochondrodystrophy. Silverskiöld's and Morquio's Syndromes. F. Helweg-Larsen and E. Trier Mørch.—p. 877.

Norsk Magasin for Lægevidenskapen

Results of Internal Treatment of Chronic Gastroduodenal Ulcer: Clinical Roentgenologic After-Examination of 263 Patients. L. Ulven and A. Aanonsen.—p. 888.
Hyperinsulinism: 2 Cases Treated with Resection Where Apparently Normal Pancreas Was Found. H. F. Harbitz.—p. 894.
Prognosis in Tendovaginal Panaritium: After-Examination of 151 Cases. H. S. Nissen-Lie.—p. 898.

Hygiea

Formation of Aseptic Stones in Urinary Ducts. Greta Hammarsten. —p. 911.

Heredity of Osteochondrodystrophy: Silverskiöld's and Morquio's Syndromes.—From their survey of twenty-one families with osteochondrodystrophy reported in the literature Helweg-Larsen and Mørch conclude that there are two forms of the disorder, Morquio's syndrome, with skeletal changes localized especially in the vertebral column and inherited recessively, and Silverskiöld's syndrome, with skeletal changes mainly in the extremities and transmitted as a simple dominant character. This view is confirmed by the 12 cases described from three families with Morquio's syndrome and one family with Silverskiöld's syndrome. Isolated cases of Silverskiöld's syndrome perhaps originate through mutation.

Book Notices

Diseases of the Retina. By Herman Elwyn, M.D., Senior Assistant Surgeon, New York Eye and Ear Infirmary, New York. Cloth. Price, $10. Pp. 587, with 170 illustrations. Philadelphia & Toronto: Blakiston Company, 1946.

The author has attempted to present a complete work on retinal diseases, as none has been published since the work of Leber in 1916. The volume is divided into eight parts. While the illustrations are fairly complete, more colored illustrations would have added considerably to its value. Part I consists of 141 pages devoted to diseases of the retina resulting from disturbances in circulation. It is written in a logical style that should be fairly easily understood by students and practitioners. This section represents the most important part of the work, because without a thorough knowledge of its contents the remainder becomes meaningless. Considerable emphasis is placed on the various blood vessel changes frequently encountered, and the accompanying illustrations help to clarify the contents. Diseases of the retina resulting from vascular malformations follow. Parts 3 and 4, consisting of degenerative and inflammatory diseases of the retina, contain many microscopic illustrations tending to clarify the pathology involved. Such a presentation is lacking in most textbooks and tends to make this book considerably more valuable to the practitioner. The section on diseases of the retina leading to retinal detachments should have been more complete. There are too few colored illustrations present for essential teaching purposes, as most ophthalmologists are not too well versed on this subject. Modern methods of treatment are included but could have been more specific in details. The section on developmental anomalies of the retina is quite complete. The work as a whole will undoubtedly fill a breach in the present ophthalmologic literature and will be a valuable addition to the library of ophthalmologists.

Skin Diseases, Nutrition and Metabolism. By Erich Urbach, M.D., F.A.C.A., Associate in Dermatology, University of Pennsylvania, Philadelphia. With the collaboration of Edward B. LeWinn, B.S., M.D., F.A.C.P., Associate in Medicine, Jewish Hospital, Philadelphia. Fabrikoid. Price, $10. Pp. 634, with 266 illustrations. New York: Grune & Stratton, 1946.

The author has been a prodigious worker in the field of cutaneous metabolism, and the full fruit of his intense efforts are displayed in this volume. The book is divided into five parts. Part one is devoted to the biochemistry of the skin and the influence of nutrition on its physiology; part two deals with the nutritional causes of dermatoses, including a discussion of cutaneous diseases due to malnutrition, food allergy and alimentary infections and intoxications. Part three is concerned with cutaneous diseases caused by alterations of the gastrointestinal tract, the liver and pancreas. The fourth portion of the book discusses nutritional therapy, and the fifth consists of tables intended to help in prescribing the necessary diets.

This book represents a laudable effort to make available at one source a large number of references on the nutritional aspects of the skin (more than 1,300). One would wish that the author had selected them more carefully and considered them more critically. As they are, they seem to be gathered together with the idea of missing nothing. No serious attempt is made to evaluate or integrate them. The result is, therefore, more in the nature of a compilation. The style is somewhat discoursive, which may aid the cause of intimacy between the author and the reader.

Much of the material is a report of the author's own work. This is presented in such fashion that it is difficult to dissociate actually proved facts from theories. The great bulk of this presentation is not corroborated and yet is presented as approved. A great many ideas presented are contrary to what is accepted by most dermatologists. The average dermatologist finds few places in his practice where dietotherapy is really effective. A novice, however, perusing this book would gain the impression that diet is the major attack. Either dermatologists are wofully behind in this modality or the author is overenthusiastic. He has a passion for employing not only unorthodox concepts but also terms.

Finally, one asks who would profit from reading this book. The student and general practitioner would be overwhelmed and not be capable of separating the wheat from the chaff. It might help the average dermatologist to become more conscious of the nutritional aspects of his specialty. The work, however, would find its greatest usefulness for the dermatologist seriously interested in metabolism or the investigator in general by providing a large number of references. For this, the author is to be thanked. It has meant a tremendous amount of work and drudgery.

A History of Medicine. By Douglas Guthrie, M.D., F.R.C.S., F.R.S.E. With an Introduction by Samuel C. Harvey, M.D., F.A.C.S., Wm. H. Carmalt Professor of Surgery, Yale University School of Medicine, New Haven, Connecticut. Fabrikoid. Price, $6. Pp. 448, with 72 plates. Philadelphia, London & Montreal: J. B. Lippincott Company, 1946.

By tradition the physician of bygone days was not only the healer but, together with the clergyman, the scholar of the European and American community; however, the tradition may represent a degree of wishful thinking. "Southern cooking isn't what it used to be—and never was!" might fit the situation. Be that as it may, certain it is that in this era of science—and particularly in the past five years of speeded instruction in the medical curriculum of our student body—the opportunity for the attainment of a broader cultural background has been restricted. With this in mind it might seem that the very minimum for a physician might include some knowledge of the development of his own profession. Under the circumstances it is gratifying to observe greater interest in the history of medicine, as evidenced by the expansion in the field of special journals, in monographs, both American and English, even in advertising mediums that appeal to the profession. This work of Guthrie's is a useful contribution in this direction. He presents a comprehensive but readable review of medical history that might be added to every physician's library with profit. Particularly impressive is the balance that he has been able to maintain throughout the book—in itself of real importance for a work of this character. For the modern period he has given impartial credit to the schools of the various countries. The role of the basic sciences, the development of the specialties, the technical achievements are all well integrated. The background of ancient practice is adequately treated, and the significance of the Renaissance for the rapid development of the true scientific interest that followed immediately in its wake provides a fascinating section. The appendix provides a short but useful bibliography and, together with a good index, makes reference easy. The illustrations are useful even if not quite up to the quality of the text or to prewar standards.

Off to a Good Start: A Handbook for Modern Parents. By Irma Simonton Black. Cloth. Price, $2.50. Pp. 256, with illustrations by Lydia Cooley. New York: Harcourt, Brace and Company, 1946.

This is a nontechnical handbook about the day to day problems which confront the modern parents of young children. The excellent advice it contains is based on the now well established standards of normal behavior. The author's vast experience and excellent method of imparting her acquired knowledge in this field make it easy for the reader to follow the widening circle of the child's interests and activities. Part I, on the child himself and his habits, deals with his training and growth. Part II, on the child and his family, takes up discipline and punishment. Part III, on relation with other people, analyzes different types of children. Part IV, on adventuring in a larger world, deals with new experiences. Part V, on intellectual growth, takes up the methods of acquiring information, creative play and language. The book is written so that parents with at least a high school education can understand and execute the wealth of advice the author imparts.

Tablas del valor vitaminico de productos vegetales comestibles. Ministerio del Interior, Dirección nacional de salud pública, publicaciones del Instituto nacional de la nutrición, director general Prof. Dr. Pedro Escudero. Paper. Price, 2.50 pesos. Pp. 53. Buenos Aires: Instituto nacional de la nutrición, 1945.

This book is a compilation of tabulated data showing the principal vitamin values for both fruits and vegetables. Methods of analysis are described.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POOLED BLOOD FOR BLOOD BANKS

To the Editor:—**Please discuss the use of pooled whole blood in a blood bank. I contemplate establishing a blood bank and understand that pooled whole blood without the necessity of typing or cross matching is the newest accepted procedure.** **Marvin M. Harris, Ph.D., Macon, Ga.**

ANSWER.—If the term pooled whole blood is meant to indicate a mixture of blood of the various groups, it may be said that this procedure is absolutely contraindicated in preparation for transfusion. Pooling of two or more different groups would result in agglutination and/or hemolysis of at least one of the bloods. For example, mixing of group O and group A blood would result in action of the anti-A antibodies of the O blood on the A cells.

Pooled lots of group O have been used for "universal donor" transfusions (Orr, W. H.: Pooling of Whole Type O Blood, *Hosp. Corps Quart.* **18**:53 [Oct.] 1945). The purpose of such pooling was to dilute the occasional group O blood with a high anti-A or anti-B agglutinin content with those which had a low or average agglutinin content. Thus there would be less danger of hemolysis or agglutination of the recipient's cells when the pooled group O blood was administered to patients of groups A, B or AB.

The practice of pooling group O blood for transfusion to recipients to all groups is not recommended in the operation of hospital blood banks because the process of pooling is apt to traumatize the cells or permit contamination.

The danger of administering high titer group O blood to an A, B or AB recipient may be avoided by dividing all group O donor bloods into two groups (McGraw, J. J.; Vaubel, E. K.; Reichel, John, Jr., and Elliott, John: Complications of Blood Transfusion, *Surg. Clin. North America* **25**:1024 [Oct.] 1945). Those with a relatively low titer may be used for recipients of group A, B or AB. Those with a higher titer may be used exclusively for group O recipients or converted to low titer bloods by the addition of Witebsky's A and B substances (prepared by Eli Lilly & Co.). "High titer" group O bloods may be separated from those with a comparatively low titer by testing a single dilution of the O serum against A and B cells. If the diluted serum agglutinates either A or B cells, it should be considered as having a high titer and therefore should not be administered to A, B or AB recipients.

It is difficult to recommend the exact dilution to be used, since various laboratories will differ in the interpretation of the tests. A technic should be chosen which results in labeling about 25 per cent of all O bloods as having a high titer. If the 25 per cent with the highest titers are used for O recipients it will be safe to use the other 75 per cent for A, B and AB recipients. Group O bloods which have a low or average content of anti-A and anti-B agglutinins may be used for patients of all groups without fear of a serious hemolytic reaction as a result of action of these agglutinins on the patients' cells. However, every transfusion should be preceded by a cross matching test except in the gravest emergency. In such cases low titer group O blood may be used. If the recipient is a woman or a man who has received previous transfusions the low titer group O blood should be Rh negative. Cross matching should be performed to check on errors in blood grouping and to check on the presence of atypical agglutinins in the patient's serum.

The use of two drops of the donor's citrated or oxalated whole blood and one drop of the recipient's inactivated serum spread thinly on a warm plate is recommended for the cross matching test. Diamond has shown that this test will detect anti-Rh agglutinins even in the presence of blocking antibody. It will also detect A B O incompatibilities.

REMOVAL OF MUST ODOR FROM BOOKS

To the Editor:—**How can one get the smell of must out of papers and books?** **Don H. Duffie, M.D., Central Lake, Mich.**

ANSWER.—The smell of must in books and papers arises from the growth of molds. There is no satisfactory way of inhibiting mold growth in a humid atmosphere. The only way is to keep books and papers in a dry place.

BRISTLE WORM IN STOOL

To the Editor:—**The stool specimen of a patient with chronic enterocolitis of four months' duration showed the presence of a water crustacean identified as a "bristle worm." This form when found in well water is evidence of pollution by surface water. What is the suggested treatment after all conservative measures have proved futile?** **W. F. Giegerich, M.D., Atlantic, Iowa.**

ANSWER.—The term "bristle worm" has been used in referring to one of the segmented worms of the class Chaetopoda. It may be that this is the worm in question. Regardless of the exact identity of the worm, the possibility that it represents a contamination of the feces occurring after the stool was passed should first be excluded. Such contamination is not uncommon and consequently organisms which do not come from the patient's gastrointestinal tract may at times be found in stool specimens submitted for examination.

When such worms as the bristle worm are ingested, it is not known that they can survive in the human gastrointestinal tract and furthermore, if they can, that they are capable of giving rise to symptoms of any kind including those of chronic enterocolitis. In the presence of diarrhea, with rapid passage of the gastrointestinal contents, ingested solids may at times be easily recognizable in the feces. So even though it can be conclusively demonstrated that the worms are both ingested and excreted by the patient, this does not constitute adequate evidence that the worms are the cause of the patient's symptoms.

Known causes of chronic enterocolitis must first be excluded, and, since there are many, numerous examinations may be necessary before a diagnosis is possible, including repeated examinations of the stools for parasites and bacteria of known pathogenicity, various blood agglutination tests, proctoscopy and x-ray examinations of the gastrointestinal tract, to mention only a few.

Insufficient information concerning the patient is given to permit more than superficial speculation as to the cause of the chronic enterocolitis. In view of these considerations there is no basis on which to recommend therapy. Certainly all measures usually employed in the treatment of parasitic infestations of the gastrointestinal tract seem contraindicated unless it is definitely known that the patient does not have any one of a number of possible infections or diseases. The drugs employed for the purpose are not uncommonly toxic even to those with a presumably intact gastrointestinal tract. In the patient under question the beneficial results that could be expected from such therapy seem so slight that the risks involved are not justified.

OBESITY, HYPOGONADISM, UNDESCENDED TESTES

To the Editor:—**A boy aged 8 years has hypopituitarism. He weighs 94 pounds (42.6 Kg.) and has girdle type obesity and all the classic symptoms, including tiny genitalia and undescended testes. Roentgenograms show the sella turcica to be about one-third the normal size. He has been "shot" with about everything, including pituitary extract, anterior and posterior extracts of the gland and male sex hormone and has taken all kinds of tablets by mouth. Are there any recent developments in the treatment of such cases?** **W. B. Chapman, M.D., Joplin, Mo.**

ANSWER.—Three problems are presented by the case described in the query: obesity, hypogonadism and undescended testes. The same material may be used for the undescended testes and the hypogonadism. The patient may be given 500 international units of chorionic gonadotropin by intramuscular injection three times a week. This treatment should be continued until moderate growth of the genitalia occurs. If the treatment is ineffective, testosterone propionate may be given in a dose of 25 mg. three times a week, and once again the treatment should be continued until moderate growth of the genitalia occurs. Occasionally when both testes are intra-abdominal they do not respond to chorionic gonadotropin. If testicular descent does not take place after the genitalia have shown moderate growth, operative procedures should be carried out at once for the correction of the cryptorchism. After the testes have been brought into the scrotum either by glandular therapy alone or by the combined use of glandular therapy and operative procedures, glandular therapy should be discontinued until the patient is about 11 years old. He is a little too young to undergo puberty. At the age of 11 chorionic gonadotropin or testosterone propionate, if chorionic gonadotropin is ineffective, may be started and continued until epiphysial closure takes place. It is impossible to state at this time whether or not some treatment of this type will be necessary for the remainder of the patient's life. He should be placed on a suitable reducing diet immediately to reduce his weight to the desired level, and thereafter it should be held there. Desiccated thyroid may be of aid as an adjunct in weight reduction but will have little or no effect on the genital growth and on the undescended testes.

DUST HAZARDS IN MANUFACTURE OF MANIKINS

To the Editor:—Are there any occupational hazards in the manufacture of display manikins? These are molded from plaster of paris, sandpapered, sprayed with lacquer paint and then packed in shredded newspaper. The atmosphere is usually filled with a mixture of plaster of paris dust, paint and newspaper dust. Would a person with sinusitis and severe chronic bronchitis suffer an extra risk? Should any precautions be taken?

M.D., New York.

ANSWER.—This situation introduces a number of theoretical opportunities for small injuries. Lacquers contain acetates, the vapors of which may be mildly irritating to any person. Sandpaper depends on silica for its abrasive action. If the silica dust created is extensive and the exposure prolonged, the possibility of silicosis exists. Dust counts will afford some index of the total dust present, but special procedures will be required to establish the proportion of free silica. Plaster of paris (calcium sulfate) is rated only as a nuisance dust, but gross amounts of any nuisance dust are objectionable and may, on a mechanical basis if not chemical, be disturbing to workers, especially those with nasal disorders. The quantity of dust from packing with shredded paper is likely to be negligible. In larger operations such as the press rooms of daily papers, complaints arise of alleged irritation from paper dust and ink. However, serious cases are not known. In general any worker with the disease states mentioned in the query would be more responsive to these mild irritants than a healthy worker. For protection due consideration should be directed to the feasibility of exhaust systems, either general or local, depending on the quantities of dusts or vapors present. Nuisance dust respirators which are readily available will bar coarse dusts such as from paper but cannot be relied on as protection against either vapors or silica dust.

EFFECT OF FLUORIDE IN FLAC TABLET

To the Editor:—A tablet named Flac, manufactured by the Flac Company, Newark, N. J., contains calcium (or CaO) 0.113 Gm., phosphate 0.153 Gm., fluoride 0.00012 and vitamin D 70 U. S. P. units. Several patients have asked whether the fluoride contents of this tablet will affect the sex glands and cause sterility.

F. J. DeCesare, M.D., Roselle Park, N. J.

ANSWER.—Atrophic changes may be produced in the testes and perhaps in the ovaries of rats by continued feeding with fluoride at the rate of 20 to 30 mg. of fluorine per kilogram of body weight daily. For a 70 Kg. man this would amount to a daily intake of 1,400 to 2,100 mg., at least twelve thousand times the 0.12 mg. said to be contained in a Flac tablet. Sterility occurs only as the result of advanced inanition. It would be more reasonable to fear mottling of the tooth enamel, which may occur in children with a daily fluorine intake of about 2.5 mg., about twenty times the amount in the Flac tablet. The normal daily intake of fluorine varies with the water supply but averages about 2 mg., or fifteen times the amount in the Flac tablet.

References:

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ARTERIOSCLEROSIS AND CALCULUS FROM CALCIUM AND PHOSPHORUS ADMINISTRATION

To the Editor:—Wafers of dicalcium phosphate 9 grains (0.6 Gm.) and calcium gluconate 6 grains (0.4 Gm.) with viosterol one to three times daily are often effective in reducing nervous irritability following alcoholism, pregnancy, infectious diseases or excessive fatigue. Will such continued calcium feeding increase the possibility of forming renal, ureteral or cystic calculi or arteriosclerosis?

Edward J. Kempf, M.D., Long Island, N. Y.

ANSWER.—There is no evidence to show that administration of the amounts of calcium and phosphorus mentioned in the query, in conjunction with normal requirements of vitamin D, would contribute to the formation of calcium deposits in a healthy urinary tract or blood vessels. The increased calcium and phosphorus content of the urine which such medication would cause may contribute to stone formation if predisposing local factors, such as stasis and infection, are present in the urinary tract. While it has never been proved that an arteriosclerotic process can be hastened by a moderate intake of vitamin D and calcium salts, yet, without a specific indication, it seems unwise to increase the calcium and vitamin D intake of elderly persons above that present in an adequate diet.

TOXICITY OF FLUORINE AND HYDROFLUORIC ACID

To the Editor:—Is it possible for fluorine gas to develop a complete anuria and destruction of one kidney necessitating the removal of the kidney?

M.D., Kansas.

ANSWER.—According to Largent, fluorine gas remains rarely as fluorine gas per se on exposure to air. With water vapor present, hydrofluoric acid is formed readily. Recently, however, fluorine has been made available commercially for research purposes. No one as yet seems to know exactly how the specific toxic reaction of fluorides is produced. Externally, fluorine is an irritant. Presumably the effects mentioned would be considered in respect to chronic poisoning, since only rarely does anuria occur in acute poisoning. In chronic poisoning anemia and gastrointestinal and neurologic reactions may be found. Albuminuria is not uncommon, but severe renal damage, as mentioned in the query, has not been reported even in the series on fluorine intoxication by Kaj Roholm. Although mild degrees of renal damage may occur as part of the picture of chronic (or even acute) poisoning, no such severe (infected secondarily?) proved fluoride renal damage necessitating surgical intervention has occurred. If it is possible, detailed chemical studies for fluorides as well as pathologic studies of the involved kidney should be done. These should be correlated with fluoride excretions studies of the individual.

STANDARDIZATION OF ANDROGENS

To the Editor:—Some companies market the male sex hormone in capon units per cubic centimeter. How does this compare in strength with testosterone propionate? For example, how many milligrams of testosterone equal 1 capon unit?

A. C. Scott, M.D., Evansville, Ill.

ANSWER.—The international unit for androgenic activity is equivalent to 0.1 mg. of crystalline androsterone. One capon unit of activity is equivalent to 1.5 international units. One mg. of testosterone propionate contains approximately 50 international units, or about 32 capon units.

CIRCUMCISION OF NEWBORN

To the Editor:—An increasing number of obstetricians are circumcising newborn infants at the time of delivery. Is this a wise procedure? How great is the danger of hemorrhage?

M.D., Florida.

ANSWER.—Circumcision of the newborn infant is a wise procedure for the reason that it will prevent the occurrence of many penile disturbances in later life such as phimosis, paraphimosis and persistent balanoposthitis.

There is little danger of hemorrhage in the newborn unless the baby is suffering from some blood dyscrasia.

FLAT FEET IN CHILDREN

To the Editor:—The answer to the query on "Arch Supports for Flat Foot in Children" appearing in The Journal, Aug. 10, 1946, page 1254, is far too dogmatic. It would be fairer to say that there is one group of orthopedic surgeons which feels as does the expert who answered the query. It would be still fairer to say that there is another group of competent orthopedic surgeons who feel entirely differently. I am one of the latter group. I feel that a pronated weak foot in a youngster definitely requires support, as the absence of support will result in a deformity of the tarsal bones as the child develops, since the bones will grow in the malposition of pronation. I still feel that the youngster with a weak pronated foot would definitely improve with exercise. However, any one who has ever handled infants and growing children knows how difficult it is to have them do exercises throughout a day. An occasional exercise morning and night for just a few minutes is of value only in giving mother gray hair and a sense of satisfaction that she is doing something for her child.

Harold Lefkoe, M.D., Philadelphia.

FRIGIDITY

To the Editor:—As a general practitioner interested in psychosomatic medicine, I wish to add several comments to the much discussed problem of frigidity. The psychologic aspect is more important than any other factor, and for this reason both surgery and endocrine therapy have been unsuccessful. This is a common problem, and many patients seen by the general practitioner can be treated successfully by him. The average patient is reluctant to be referred to the psychiatrist or the psychoanalyst. A complete social history is obtained, with particular reference to the psychosexual development. With this the attitudes, feelings, incorrect and inadequate information and traumatic experiences are often uncovered. Then in several brief sessions of psychotherapy the patient gains insight into her problem and the frigidity disappears.

Myer Marks, M.D., Chester, Pa.